

# SEQUENCE LISTING

<110> Procter & Gamble Company  
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<120> Human protein-tyrosine phosphatase beta (HPTPbeta) as a target in  
treatment of angiogenesis mediated disorders

<130> 9045M

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<170> PatentIn version 3.2

<210> 1

<211> 6075

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (31)..(6024)

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His Phe Met Lys Leu Gln Ala Asp Ser Asn Tyr Leu Leu Ser Lys	
1695 1700 1705	
gaa tac gag gag tta aaa gac gtg ggc cga aac cag tca tgt gac	5190
Glu Tyr Glu Glu Leu Lys Asp Val Gly Arg Asn Gln Ser Cys Asp	
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att gca ctc ttg ccg gag aat aga ggg aaa aat cga tac aac aat	5235
Ile Ala Leu Leu Pro Glu Asn Arg Gly Lys Asn Arg Tyr Asn Asn	
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ata ttg ccc tat gat gcc acg cga gtg aag ctc tcc aat gta gat	5280
Ile Leu Pro Tyr Asp Ala Thr Arg Val Lys Leu Ser Asn Val Asp	
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gat gat cct tgc tct gac tac atc aat gcc agc tac atc cct ggc	5325
Asp Asp Pro Cys Ser Asp Tyr Ile Asn Ala Ser Tyr Ile Pro Gly	
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aac aac ttc aga aga gaa tac att gtc act cag gga ccg ctt cct	5370
Asn Asn Phe Arg Arg Glu Tyr Ile Val Thr Gln Gly Pro Leu Pro	
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Gly Thr Lys Asp Asp Phe Trp Lys Met Val Trp Glu Gln Asn Val	
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His Asn Ile Val Met Val Thr Gln Cys Val Glu Lys Gly Arg Val	
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Lys Cys Asp His Tyr Trp Pro Ala Asp Gln Asp Ser Leu Tyr Tyr	
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Gly Asp Leu Ile Leu Gln Met Leu Ser Glu Ser Val Leu Pro Glu	
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tgg acc atc cgg gag ttt aag ata tgc ggt gag gaa cag ctt gat	5595
Trp Thr Ile Arg Glu Phe Lys Ile Cys Gly Glu Glu Gln Leu Asp	
1845 1850 1855	
gca cac aga ctc atc cgc cac ttt cac tat acg gtg tgg cca gac	5640
Ala His Arg Leu Ile Arg His Phe His Tyr Thr Val Trp Pro Asp	
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cat gga gtc cca gaa acc acc cag tct ctg atc cag ttt gtg aga	5685
His Gly Val Pro Glu Thr Thr Gln Ser Leu Ile Gln Phe Val Arg	
1875 1880 1885	
act gtc agg gac tac atc aac aga agc ccg ggt gct ggg ccc act	5730
Thr Val Arg Asp Tyr Ile Asn Arg Ser Pro Gly Ala Gly Pro Thr	
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Val Val His Cys Ser Ala Gly Val Gly Arg Thr Gly Thr Phe Ile	
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Ala Leu Asp Arg Ile Leu Gln Gln Leu Asp Ser Lys Asp Ser Val	
1920 1925 1930	
gac att tat gga gca gtg cac gac cta aga ctt cac agg gtt cac	5865
Asp Ile Tyr Gly Ala Val His Asp Leu Arg Leu His Arg Val His	
1935 1940 1945	
atg gtc cag act gag tgt cag tat gtc tac cta cat cag tgt gta	5910
Met Val Gln Thr Glu Cys Gln Tyr Val Tyr Leu His Gln Cys Val	
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Arg Asp Val Leu Arg Ala Arg Lys Leu Arg Ser Glu Gln Glu Asn	
1965 1970 1975	
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Pro Leu Phe Pro Ile Tyr Glu Asn Val Asn Pro Glu Tyr His Arg	
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Asp Pro Val Tyr Ser Arg His  
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Glu Ser Lys Ala Ser Ser His Ser Val Ser Ile Gln Trp Arg Ile Leu  
35 40 45

Gly Ser Pro Cys Asn Phe Ser Leu Ile Tyr Ser Ser Asp Thr Leu Gly  
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Ala Ala Leu Cys Pro Thr Phe Arg Ile Asp Asn Thr Thr Tyr Gly Cys  
65 70 75 80

Asn Leu Gln Asp Leu Gln Ala Gly Thr Ile Tyr Asn Phe Lys Ile Ile  
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Ser Leu Asp Glu Glu Arg Thr Val Val Leu Gln Thr Asp Pro Leu Pro  
100 105 110

Pro Ala Arg Phe Gly Val Ser Lys Glu Lys Thr Thr Ser Thr Gly Leu  
115 120 125

His Val Trp Trp Thr Pro Ser Ser Gly Lys Val Thr Ser Tyr Glu Val  
130 135 140

Gln Leu Phe Asp Glu Asn Asn Gln Lys Ile Gln Gly Val Gln Ile Gln  
145 150 155 160

Glu Ser Thr Ser Trp Asn Glu Tyr Thr Phe Phe Asn Leu Thr Ala Gly  
165 170 175

Ser Lys Tyr Asn Ile Ala Ile Thr Ala Val Ser Gly Gly Lys Arg Ser  
180 185 190

Phe Ser Val Tyr Thr Asn Gly Ser Thr Val Pro Ser Pro Val Lys Asp  
 195 200 205

Ile Gly Ile Ser Thr Lys Ala Asn Ser Leu Leu Ile Ser Trp Ser His  
 210 215 220

Gly Ser Gly Asn Val Glu Arg Tyr Arg Leu Met Leu Met Asp Lys Gly  
 225 230 235 240

Ile Leu Val His Gly Gly Val Val Asp Lys His Ala Thr Ser Tyr Ala  
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Phe His Gly Leu Ser Pro Gly Tyr Leu Tyr Asn Leu Thr Val Met Thr  
 260 265 270

Glu Ala Ala Gly Leu Gln Asn Tyr Arg Trp Lys Leu Val Arg Thr Ala  
 275 280 285

Pro Met Glu Val Ser Asn Leu Lys Val Thr Asn Asp Gly Ser Leu Thr  
 290 295 300

Ser Leu Lys Val Lys Trp Gln Arg Pro Pro Gly Asn Val Asp Ser Tyr  
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Asn Ile Thr Leu Ser His Lys Gly Thr Ile Lys Glu Ser Arg Val Leu  
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Ala Pro Trp Ile Thr Glu Thr His Phe Lys Glu Leu Val Pro Gly Arg  
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Leu Tyr Gln Val Thr Val Ser Cys Val Ser Gly Glu Leu Ser Ala Gln  
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Lys Met Ala Val Gly Arg Thr Phe Pro Asp Lys Val Ala Asn Leu Glu  
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Ala Asn Asn Asn Gly Arg Met Arg Ser Leu Val Val Ser Trp Ser Pro  
 385 390 395 400

Pro Ala Gly Asp Trp Glu Gln Tyr Arg Ile Leu Leu Phe Asn Asp Ser  
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Val Val Leu Leu Asn Ile Thr Val Gly Lys Glu Glu Thr Gln Tyr Val  
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Met Asp Asp Thr Gly Leu Val Pro Gly Arg Gln Tyr Glu Val Glu Val



Val Ile Ala Lys Ser Val Arg Glu Cys Ser Phe Ser Ser Leu Thr Pro  
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Gly Arg Leu Tyr Thr Val Thr Ile Thr Thr Arg Ser Gly Lys Tyr Glu  
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Asn His Ser Phe Ser Gln Glu Arg Thr Val Pro Asp Lys Val Gln Gly  
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Val Ser Val Ser Asn Ser Ala Arg Ser Asp Tyr Leu Arg Val Ser Trp  
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Val His Ala Thr Gly Asp Phe Asp His Tyr Glu Val Thr Ile Lys Asn  
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Lys Asn Asn Phe Ile Gln Thr Lys Ser Ile Pro Lys Ser Glu Asn Glu  
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Cys Val Phe Val Gln Leu Val Pro Gly Arg Leu Tyr Ser Val Thr Val  
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Thr Thr Lys Ser Gly Gln Tyr Glu Ala Asn Glu Gln Gly Asn Gly Arg  
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Thr Ile Pro Glu Pro Val Lys Asp Leu Thr Leu Arg Asn Arg Ser Thr  
 820 825 830

Glu Asp Leu His Val Thr Trp Ser Gly Ala Asn Gly Asp Val Asp Gln  
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Tyr Glu Ile Gln Leu Leu Phe Asn Asp Met Lys Val Phe Pro Pro Phe  
 850 855 860

His Leu Val Asn Thr Ala Thr Glu Tyr Arg Phe Thr Ser Leu Thr Pro  
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Gly Arg Gln Tyr Lys Ile Leu Val Leu Thr Ile Ser Gly Asp Val Gln  
 885 890 895

Gln Ser Ala Phe Ile Glu Gly Phe Thr Val Pro Ser Ala Val Lys Asn  
 900 905 910

Ile His Ile Ser Pro Asn Gly Ala Thr Asp Ser Leu Thr Val Asn Trp  
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Thr Pro Gly Gly Gly Asp Val Asp Ser Tyr Thr Val Ser Ala Phe Arg  
 930 935 940

His Ser Gln Lys Val Asp Ser Gln Thr Ile Pro Lys His Val Phe Glu  
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His Thr Phe His Arg Leu Glu Ala Gly Glu Gln Tyr Gln Ile Met Ile  
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Ala Ser Val Ser Gly Ser Leu Lys Asn Gln Ile Asn Val Val Gly Arg  
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Thr Val Pro Ala Ser Val Gln Gly Val Ile Ala Asp Asn Ala Tyr Ser  
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Ser Tyr Ser Leu Ile Val Ser Trp Gln Lys Ala Ala Gly Val Ala  
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Glu Arg Tyr Asp Ile Leu Leu Leu Thr Glu Asn Gly Ile Leu Leu  
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Arg Asn Thr Ser Glu Pro Ala Thr Thr Lys Gln His Lys Phe Glu  
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Asp Leu Thr Pro Gly Lys Lys Tyr Lys Ile Gln Ile Leu Thr Val  
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Ser Gly Gly Leu Phe Ser Lys Glu Ala Gln Thr Glu Gly Arg Thr  
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Val Pro Ala Ala Val Thr Asp Leu Arg Ile Thr Glu Asn Ser Thr  
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Arg His Leu Ser Phe Arg Trp Thr Ala Ser Glu Gly Glu Leu Ser  
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Trp Tyr Asn Ile Phe Leu Tyr Asn Pro Asp Gly Asn Leu Gln Glu  
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Gly	Glu	Leu	Ser	Asn	Glu	Ser	Phe	Ile	Phe	Gly	Arg	Thr	Val	Pro
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Ser	Leu	Trp	Phe	Asn	Trp	Ser	Pro	Ala	Ser	Gly	Asp	Phe	Asp	Phe
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Tyr	Glu	Leu	Ile	Leu	Tyr	Asn	Pro	Asn	Gly	Thr	Lys	Lys	Glu	Asn
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Trp	Lys	Asp	Lys	Asp	Leu	Thr	Glu	Trp	Arg	Phe	Gln	Gly	Leu	Val
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Pro	Gly	Arg	Lys	Tyr	Val	Leu	Trp	Val	Val	Thr	His	Ser	Gly	Asp
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Phe Ser Arg Lys Leu Glu Lys Glu Lys Ser Leu Leu Asn Ile Met				
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Met Leu Val Pro His Lys Arg Tyr Leu Val Ser Ile Lys Val Gln				
1415		1420		1425
Ser Ala Gly Met Thr Ser Glu Val Val Glu Asp Ser Thr Ile Thr				
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Met Ile Asp Arg Pro Pro Pro Pro Pro Pro His Ile Arg Val Asn				
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Glu Lys Asp Val Leu Ile Ser Lys Ser Ser Ile Asn Phe Thr Val				
1460		1465		1470
Asn Cys Ser Trp Phe Ser Asp Thr Asn Gly Ala Val Lys Tyr Phe				
1475		1480		1485
Thr Val Val Val Arg Glu Ala Asp Gly Ser Asp Glu Leu Lys Pro				
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Glu Gln Gln His Pro Leu Pro Ser Tyr Leu Glu Tyr Arg His Asn				
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Ala Ser Ile Arg Val Tyr Gln Thr Asn Tyr Phe Ala Ser Lys Cys				
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Ala Glu Asn Pro Asn Ser Asn Ser Lys Ser Phe Asn Ile Lys Leu				
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Gly Ala Glu Met Glu Ser Leu Gly Gly Lys Arg Asp Pro Thr Gln				
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Gln Lys Phe Cys Asp Gly Pro Leu Lys Pro His Thr Ala Tyr Arg				
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Ile Ser Ile Arg Ala Phe Thr Gln Leu Phe Asp Glu Asp Leu Lys				
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Glu Phe Thr Lys Pro Leu Tyr Ser Asp Thr Phe Phe Ser Leu Pro				
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Ile Thr Thr Glu Ser Glu Pro Leu Phe Gly Ala Ile Glu Gly Val				
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Val	Thr	Gln	Gly	Pro	Leu	Pro	Gly	Thr	Lys	Asp	Asp	Phe	Trp	Lys
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Met	Val	Trp	Glu	Gln	Asn	Val	His	Asn	Ile	Val	Met	Val	Thr	Gln
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Cys	Val	Glu	Lys	Gly	Arg	Val	Lys	Cys	Asp	His	Tyr	Trp	Pro	Ala
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Cys Gly Glu Glu Gln Leu Asp Ala His Arg Leu Ile Arg His Phe  
1850 1855 1860

His Tyr Thr Val Trp Pro Asp His Gly Val Pro Glu Thr Thr Gln  
1865 1870 1875

Ser Leu Ile Gln Phe Val Arg Thr Val Arg Asp Tyr Ile Asn Arg  
1880 1885 1890

Ser Pro Gly Ala Gly Pro Thr Val Val His Cys Ser Ala Gly Val  
1895 1900 1905

Gly Arg Thr Gly Thr Phe Ile Ala Leu Asp Arg Ile Leu Gln Gln  
1910 1915 1920

Leu Asp Ser Lys Asp Ser Val Asp Ile Tyr Gly Ala Val His Asp  
1925 1930 1935

Leu Arg Leu His Arg Val His Met Val Gln Thr Glu Cys Gln Tyr  
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Val Tyr Leu His Gln Cys Val Arg Asp Val Leu Arg Ala Arg Lys  
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Thr Ser Glu Val Val Glu Asp Ser Thr Ile Thr Met Ile Asp Arg Pro  
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Phe	Ala	Ser	Lys	Cys	Ala	Glu	Ser	Pro	Asp	Ser	Ser	Ser	Lys	Ser	Phe		
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Pro	Ser	Gln	Gln	Lys	Phe	Cys	Asp	Gly	Pro	Leu	Leu	Pro	His	Thr	Ala		
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Tyr	Arg	Ile	Ser	Ile	Arg	Ala	Phe	Thr	Gln	Leu	Phe	Asp	Glu	Asp	Leu		
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Lys	Glu	Phe	Thr	Lys	Pro	Leu	Tyr	Ser	Asp	Thr	Phe	Phe	Ser	Met	Pro		
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Gln	Lys	Gly	Asn	Arg	Lys	Thr	Ser	Cys	Pro	Ile	Lys	Ile	Asn	Gln	Phe		
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Lys	Glu	Tyr	Glu	Asp	Leu	Lys	Asp	Val	Gly	Arg	Ser	Gln	Ser	Cys	Asp	
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Ile	Ala	Leu	Leu	Pro	Glu	Asn	Arg	Gly	Lys	Asn	Arg	Tyr	Asn	Asn	Ile	
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Pro	Cys	Ser	Asp	Tyr	Ile	Asn	Ala	Ser	Tyr	Ile	Pro	Gly	Asn	Asn	Phe	
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Asp	Phe	Trp	Lys	Met	Ala	Trp	Glu	Gln	Asn	Val	His	Asn	Ile	Val	Met	
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Val	Thr	Gln	Cys	Val	Glu	Lys	Gly	Arg	Val	Lys	Cys	Asp	His	Tyr	Trp	
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Cys	Ser	Glu	Glu	Gln	Leu	Asp	Ala	His	Arg	Leu	Ile	Arg	His	Phe	His	
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Tyr	Thr	Val	Trp	Pro	Asp	His	Gly	Val	Pro	Glu	Thr	Thr	Gln	Ser	Leu	
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Ile	Gln	Phe	Val	Arg	Thr	Val	Arg	Asp	Tyr	Ile	Asn	Arg	Ser	Pro	Gly	
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Ala	Gly	Pro	Ser	Val	Val	His	Cys	Ser	Ala	Gly	Val	Gly	Arg	Thr	Gly	
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Thr	Phe	Val	Ala	Leu	Asp	Arg	Ile	Leu	Gln	Gln	Leu	Asp	Ser	Lys	Asp	
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Ser	Val	Asp	Ile	Tyr	Gly	Ala	Val	His	Asp	Leu	Arg	Leu	His	Arg	Val	
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Lys Glu Phe Thr Lys Pro Leu Tyr Ser Asp Thr Phe Phe Ser Met Pro  
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Glu Gly His Phe Met Lys Leu Gln Ala Asp Ser Asn Tyr Leu Leu Ser  
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Leu Pro Tyr Asp Ala Ser Arg Val Lys Leu Ser Asn Val Asp Asp Asp  
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Pro Cys Ser Asp Tyr Ile Asn Ala Ser Tyr Ile Pro Gly Asn Asn Phe  
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Arg Arg Glu Tyr Ile Ala Thr Gln Gly Pro Leu Pro Gly Thr Lys Asp  
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Asp Phe Trp Lys Met Ala Trp Glu Gln Asn Val His Asn Ile Val Met  
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Val Thr Gln Cys Val Glu Lys Gly Arg Val Lys Cys Asp His Tyr Trp

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 Pro Ala Asp Gln Asp Pro Leu Tyr Tyr Gly Asp Leu Ile Leu Gln Met  
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 Val Ser Glu Ser Val Leu Pro Glu Trp Thr Ile Arg Glu Phe Lys Ile  
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 Cys Ser Glu Glu Gln Leu Asp Ala His Arg Leu Ile Arg His Phe His  
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 Tyr Thr Val Trp Pro Asp His Gly Val Pro Glu Thr Thr Gln Ser Leu  
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 Ile Gln Phe Val Arg Thr Val Arg Asp Tyr Ile Asn Arg Ser Pro Gly  
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Arg Leu Ser Ile Gln Lys Asp Ile Leu Thr Ile Lys Ala Asn Thr Thr	
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Leu Gln Ile Thr Cys Arg Gly Gln Arg Asp Leu Asp Trp Leu Trp Pro	
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Asp Thr Gly Ala Tyr Lys Cys Phe Tyr Arg Glu Thr Asp Leu Ala Ser	
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Val Ile Tyr Val Tyr Val Gln Asp Tyr Arg Ser Pro Phe Ile Ala Ser	
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Val Ser Asp Gln His Gly Val Val Tyr Ile Thr Glu Asn Lys Asn Lys	
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Thr Val Val Ile Pro Cys Leu Gly Ser Ile Ser Asn Leu Asn Val Ser	
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Ser Tyr Ala Gly Met Val Phe Cys Glu Ala Lys Ile Asn Asp Glu Ser	
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Tyr Gln Ser Ile Met Tyr Ile Val Val Val Val Gly Tyr Arg Ile Tyr	
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Asp Val Val Leu Ser Pro Ser His Gly Ile Glu Leu Ser Val Gly Glu	
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Leu	Trp	Lys	Leu	Asn	Ala	Thr	Met	Phe	Ser	Asn	Ser	Thr	Asn	Asp	Ile		
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gtc	tgc	ctt	gct	caa	gac	agg	aag	acc	aag	aaa	aga	cat	tgc	gtg	gtc	1968	
Val	Cys	Leu	Ala	Gln	Asp	Arg	Lys	Thr	Lys	Lys	Arg	His	Cys	Val	Val		
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agg	cag	ctc	aca	gtc	cta	gag	cgt	gtg	gca	ccc	acg	atc	aca	gga	aac	2016	
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Glu Glu Glu Val Cys Asp Pro Lys Phe His Tyr Asp Asn Thr Ala	
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gga atc agt cag tat ctg cag aac agt aag cga aag agc cgg cct	3699
Gly Ile Ser Gln Tyr Leu Gln Asn Ser Lys Arg Lys Ser Arg Pro	
1220 1225 1230	
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Val Ser Val Lys Thr Phe Glu Asp Ile Pro Leu Glu Glu Pro Glu	
1235 1240 1245	
gta aaa gta atc cca gat gac aac cag acg gac agt ggt atg gtt	3789
Val Lys Val Ile Pro Asp Asp Asn Gln Thr Asp Ser Gly Met Val	
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ctt gcc tca gaa gag ctg aaa act ttg gaa gac aga acc aaa tta	3834
Leu Ala Ser Glu Glu Leu Lys Thr Leu Glu Asp Arg Thr Lys Leu	
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Ser Pro Ser Phe Gly Gly Met Val Pro Ser Lys Ser Arg Glu Ser	
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Val Ala Ser Glu Gly Ser Asn Gln Thr Ser Gly Tyr Gln Ser Gly	
1295 1300 1305	
tat cac tcc gat gac aca gac acc acc gtg tac tcc agt gag gaa	3969
Tyr His Ser Asp Asp Thr Asp Thr Thr Val Tyr Ser Ser Glu Glu	
1310 1315 1320	
gca gaa ctt tta aag ctg ata gag att gga gtg caa acc ggt agc	4014
Ala Glu Leu Leu Lys Leu Ile Glu Ile Gly Val Gln Thr Gly Ser	
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aca gcc cag att ctc cag cct gac tcg ggg acc aca ctg agc tct	4059
Thr Ala Gln Ile Leu Gln Pro Asp Ser Gly Thr Thr Leu Ser Ser	
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cct cct gtt taa	4071
Pro Pro Val	
1355	

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Thr Arg Ala Ala Ser Val Gly Leu Pro Ser Val Ser Leu Asp Leu Pro
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Arg Leu Ser Ile Gln Lys Asp Ile Leu Thr Ile Lys Ala Asn Thr Thr

35	40	45															
Leu	Gln	Ile	Thr	Cys	Arg	Gly	Gln	Arg	Asp	Leu	Asp	Trp	Leu	Trp	Pro		
50						55				60							
Asn	Asn	Gln	Ser	Gly	Ser	Glu	Gln	Arg	Val	Glu	Val	Thr	Glu	Cys	Ser		
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Asp	Gly	Leu	Phe	Cys	Lys	Thr	Leu	Thr	Ile	Pro	Lys	Val	Ile	Gly	Asn		
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Asp	Thr	Gly	Ala	Tyr	Lys	Cys	Phe	Tyr	Arg	Glu	Thr	Asp	Leu	Ala	Ser		
			100					105					110				
Val	Ile	Tyr	Val	Tyr	Val	Gln	Asp	Tyr	Arg	Ser	Pro	Phe	Ile	Ala	Ser		
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Val	Ser	Asp	Gln	His	Gly	Val	Val	Tyr	Ile	Thr	Glu	Asn	Lys	Asn	Lys		
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Ile	Ser	Trp	Asp	Ser	Lys	Lys	Gly	Phe	Thr	Ile	Pro	Ser	Tyr	Met	Ile		
			180					185					190				
Ser	Tyr	Ala	Gly	Met	Val	Phe	Cys	Glu	Ala	Lys	Ile	Asn	Asp	Glu	Ser		
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Tyr	Gln	Ser	Ile	Met	Tyr	Ile	Val	Val	Val	Val	Gly	Tyr	Arg	Ile	Tyr		
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Lys	Leu	Val	Leu	Asn	Cys	Thr	Ala	Arg	Thr	Glu	Leu	Asn	Val	Gly	Ile		
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Asp	Phe	Asn	Trp	Glu	Tyr	Pro	Ser	Ser	Lys	His	Gln	His	Lys	Lys	Leu		
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Val	Asn	Arg	Asp	Leu	Lys	Thr	Gln	Ser	Gly	Ser	Glu	Met	Lys	Lys	Phe		
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Leu Ser Thr Leu Thr Ile Asp Gly Val Thr Arg Ser Asp Gln Gly Leu  
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Tyr Thr Cys Ala Ala Ser Ser Gly Leu Met Thr Lys Lys Asn Ser Thr  
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Phe Val Arg Val His Glu Lys Pro Phe Val Ala Phe Gly Ser Gly Met  
 325 330 335

Glu Ser Leu Val Glu Ala Thr Val Gly Glu Arg Val Arg Ile Pro Ala  
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Lys Tyr Leu Gly Tyr Pro Pro Pro Glu Ile Lys Trp Tyr Lys Asn Gly  
 355 360 365

Ile Pro Leu Glu Ser Asn His Thr Ile Lys Ala Gly His Val Leu Thr  
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Ile Met Glu Val Ser Glu Arg Asp Thr Gly Asn Tyr Thr Val Ile Leu  
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Thr Asn Pro Ile Ser Lys Glu Lys Gln Ser His Val Val Ser Leu Val  
 405 410 415

Val Tyr Val Pro Pro Gln Ile Gly Glu Lys Ser Leu Ile Ser Pro Val  
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Asp Ser Tyr Gln Tyr Gly Thr Thr Gln Thr Leu Thr Cys Thr Val Tyr  
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Ala Ile Pro Pro Pro His His Ile His Trp Tyr Trp Gln Leu Glu Glu  
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Glu Cys Ala Asn Glu Pro Ser Gln Ala Val Ser Val Thr Asn Pro Tyr  
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Pro Cys Glu Glu Trp Arg Ser Val Glu Asp Phe Gln Gly Gly Asn Lys  
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Ile Glu Val Asn Lys Asn Gln Phe Ala Leu Ile Glu Gly Lys Asn Lys  
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Thr Val Ser Thr Leu Val Ile Gln Ala Ala Asn Val Ser Ala Leu Tyr  
 515 520 525

Lys Cys Glu Ala Val Asn Lys Val Gly Arg Gly Glu Arg Val Ile Ser  
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Phe His Val Thr Arg Gly Pro Glu Ile Thr Leu Gln Pro Asp Met Gln  
545 550 555 560

Pro Thr Glu Gln Glu Ser Val Ser Leu Trp Cys Thr Ala Asp Arg Ser  
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Thr Phe Glu Asn Leu Thr Trp Tyr Lys Leu Gly Pro Gln Pro Leu Pro  
580 585 590

Ile His Val Gly Glu Leu Pro Thr Pro Val Cys Lys Asn Leu Asp Thr  
595 600 605

Leu Trp Lys Leu Asn Ala Thr Met Phe Ser Asn Ser Thr Asn Asp Ile  
610 615 620

Leu Ile Met Glu Leu Lys Asn Ala Ser Leu Gln Asp Gln Gly Asp Tyr  
625 630 635 640

Val Cys Leu Ala Gln Asp Arg Lys Thr Lys Lys Arg His Cys Val Val  
645 650 655

Arg Gln Leu Thr Val Leu Glu Arg Val Ala Pro Thr Ile Thr Gly Asn  
660 665 670

Leu Glu Asn Gln Thr Thr Ser Ile Gly Glu Ser Ile Glu Val Ser Cys  
675 680 685

Thr Ala Ser Gly Asn Pro Pro Pro Gln Ile Met Trp Phe Lys Asp Asn  
690 695 700

Glu Thr Leu Val Glu Asp Ser Gly Ile Val Leu Lys Asp Gly Asn Arg  
705 710 715 720

Asn Leu Thr Ile Arg Arg Val Arg Lys Glu Asp Glu Gly Leu Tyr Thr  
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Cys Gln Ala Cys Ser Val Leu Gly Cys Ala Lys Val Glu Ala Phe Phe  
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Ile Ile Glu Gly Ala Gln Glu Lys Thr Asn Leu Glu Ile Ile Ile Leu  
755 760 765

Val Gly Thr Ala Val Ile Ala Met Phe Phe Trp Leu Leu Leu Val Ile  
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Ile Leu Arg Thr Val Lys Arg Ala Asn Gly Gly Glu Leu Lys Thr Gly  
 785 790 795 800

Tyr Leu Ser Ile Val Met Asp Pro Asp Glu Leu Pro Leu Asp Glu His  
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Cys Glu Arg Leu Pro Tyr Asp Ala Ser Lys Trp Glu Phe Pro Arg Asp  
 820 825 830

Arg Leu Lys Leu Gly Lys Pro Leu Gly Arg Gly Ala Phe Gly Gln Val  
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Ile Glu Ala Asp Ala Phe Gly Ile Asp Lys Thr Ala Thr Cys Arg Thr  
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Val Ala Val Lys Met Leu Lys Glu Gly Ala Thr His Ser Glu His Arg  
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Ala Leu Met Ser Glu Leu Lys Ile Leu Ile His Ile Gly His His Leu  
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Asn Val Val Asn Leu Leu Gly Ala Cys Thr Lys Pro Gly Gly Pro Leu  
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Met Val Ile Val Glu Phe Cys Lys Phe Gly Asn Leu Ser Thr Tyr Leu  
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Arg Ser Lys Arg Asn Glu Phe Val Pro Tyr Lys Thr Lys Gly Ala Arg  
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Phe Arg Gln Gly Lys Asp Tyr Val Gly Ala Ile Pro Val Asp Leu Lys  
 945 950 955 960

Arg Arg Leu Asp Ser Ile Thr Ser Ser Gln Ser Ser Ala Ser Ser Gly  
 965 970 975

Phe Val Glu Glu Lys Ser Leu Ser Asp Val Glu Glu Glu Glu Ala Pro  
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Glu Asp Leu Tyr Lys Asp Phe Leu Thr Leu Glu His Leu Ile Cys Tyr  
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Ser Phe Gln Val Ala Lys Gly Met Glu Phe Leu Ala Ser Arg Lys

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Cys Ile His Arg Asp Leu 1025	Ala Ala Arg Asn Ile 1030	Leu Leu Ser Glu 1035
Lys Asn Val Val Lys Ile 1040	Cys Asp Phe Gly Leu 1045	Ala Arg Asp Ile 1050
Tyr Lys Asp Pro Asp Tyr 1055	Val Arg Lys Gly Asp 1060	Ala Arg Leu Pro 1065
Leu Lys Trp Met Ala Pro 1070	Glu Thr Ile Phe Asp 1075	Arg Val Tyr Thr 1080
Ile Gln Ser Asp Val Trp 1085	Ser Phe Gly Val Leu 1090	Leu Trp Glu Ile 1095
Phe Ser Leu Gly Ala Ser 1100	Pro Tyr Pro Gly Val 1105	Lys Ile Asp Glu 1110
Glu Phe Cys Arg Arg Leu 1115	Lys Glu Gly Thr Arg 1120	Met Arg Ala Pro 1125
Asp Tyr Thr Thr Pro Glu 1130	Met Tyr Gln Thr Met 1135	Leu Asp Cys Trp 1140
His Gly Glu Pro Ser Gln 1145	Arg Pro Thr Phe Ser 1150	Glu Leu Val Glu 1155
His Leu Gly Asn Leu Leu 1160	Gln Ala Asn Ala Gln 1165	Gln Asp Gly Lys 1170
Asp Tyr Ile Val Leu Pro 1175	Ile Ser Glu Thr Leu 1180	Ser Met Glu Glu 1185
Asp Ser Gly Leu Ser Leu 1190	Pro Thr Ser Pro Val 1195	Ser Cys Met Glu 1200
Glu Glu Glu Val Cys Asp 1205	Pro Lys Phe His Tyr 1210	Asp Asn Thr Ala 1215
Gly Ile Ser Gln Tyr Leu 1220	Gln Asn Ser Lys Arg 1225	Lys Ser Arg Pro 1230
Val Ser Val Lys Thr Phe 1235	Glu Asp Ile Pro Leu 1240	Glu Glu Pro Glu 1245

Val Lys Val Ile Pro Asp Asp Asn Gln Thr Asp Ser Gly Met Val  
1250 1255 1260

Leu Ala Ser Glu Glu Leu Lys Thr Leu Glu Asp Arg Thr Lys Leu  
1265 1270 1275

Ser Pro Ser Phe Gly Gly Met Val Pro Ser Lys Ser Arg Glu Ser  
1280 1285 1290

Val Ala Ser Glu Gly Ser Asn Gln Thr Ser Gly Tyr Gln Ser Gly  
1295 1300 1305

Tyr His Ser Asp Asp Thr Asp Thr Thr Val Tyr Ser Ser Glu Glu  
1310 1315 1320

Ala Glu Leu Leu Lys Leu Ile Glu Ile Gly Val Gln Thr Gly Ser  
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Pro Pro Val  
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gaaactggat ggagagattt ggggaagc atg gac tct tta gcc agc tta gtt 172  
Met Asp Ser Leu Ala Ser Leu Val  
1 5  
ctc tgt gga gtc agc ttg ctc ctt tct gga act gtg gaa ggt gcc atg 220  
Leu Cys Gly Val Ser Leu Leu Leu Ser Gly Thr Val Glu Gly Ala Met  
10 15 20  
gac ttg atc ttg atc aat tcc cta cct ctt gta tct gat gct gaa aca 268  
Asp Leu Ile Leu Ile Asn Ser Leu Pro Leu Val Ser Asp Ala Glu Thr  
25 30 35 40

tct ctc acc tgc att gcc tct ggg tgg cgc ccc cat gag ccc atc acc Ser Leu Thr Cys Ile Ala Ser Gly Trp Arg Pro His Glu Pro Ile Thr 45 50 55	316
ata gga agg gac ttt gaa gcc tta atg aac cag cac cag gat ccg ctg Ile Gly Arg Asp Phe Glu Ala Leu Met Asn Gln His Gln Asp Pro Leu 60 65 70	364
gaa gtt act caa gat gtg acc aga gaa tgg gct aaa aaa gtt gtt tgg Glu Val Thr Gln Asp Val Thr Arg Glu Trp Ala Lys Lys Val Val Trp 75 80 85	412
aag aga gaa aag gct agt aag atc aat ggt gct tat ttc tgt gaa ggg Lys Arg Glu Lys Ala Ser Lys Ile Asn Gly Ala Tyr Phe Cys Glu Gly 90 95 100	460
cga gtt cga gga gag gca atc agg ata cga acc atg aag atg cgt caa Arg Val Arg Gly Glu Ala Ile Arg Ile Arg Thr Met Lys Met Arg Gln 105 110 115 120	508
caa gct tcc ttc cta cca gct act tta act atg act gtg gac aag gga Gln Ala Ser Phe Leu Pro Ala Thr Leu Thr Met Thr Val Asp Lys Gly 125 130 135	556
gat aac gtg aac ata tct ttc aaa aag gta ttg att aaa gaa gaa gat Asp Asn Val Asn Ile Ser Phe Lys Lys Val Leu Ile Lys Glu Glu Asp 140 145 150	604
gca gtg att tac aaa aat ggt tcc ttc atc cat tca gtg ccc cgg cat Ala Val Ile Tyr Lys Asn Gly Ser Phe Ile His Ser Val Pro Arg His 155 160 165	652
gaa gta cct gat att cta gaa gta cac ctg cct cat gct cag ccc cag Glu Val Pro Asp Ile Leu Glu Val His Leu Pro His Ala Gln Pro Gln 170 175 180	700
gat gct gga gtg tac tcg gcc agg tat ata gga gga aac ctc ttc acc Asp Ala Gly Val Tyr Ser Ala Arg Tyr Ile Gly Gly Asn Leu Phe Thr 185 190 195 200	748
tcg gcc ttc acc agg ctg ata gtc cgg aga tgt gaa gcc cag aag tgg Ser Ala Phe Thr Arg Leu Ile Val Arg Arg Cys Glu Ala Gln Lys Trp 205 210 215	796
gga cct gaa tgc aac cat ctc tgt act gct tgt atg aac aat ggt gtc Gly Pro Glu Cys Asn His Leu Cys Thr Ala Cys Met Asn Asn Gly Val 220 225 230	844
tgc cat gaa gat act gga gaa tgc att tgc cct cct ggg ttt atg gga Cys His Glu Asp Thr Gly Glu Cys Ile Cys Pro Pro Gly Phe Met Gly 235 240 245	892
agg acg tgt gag aag gct tgt gaa ctg cac acg ttt ggc aga act tgt Arg Thr Cys Glu Lys Ala Cys Glu Leu His Thr Phe Gly Arg Thr Cys 250 255 260	940
aaa gaa agg tgc agt gga caa gag gga tgc aag tct tat gtg ttc tgt Lys Glu Arg Cys Ser Gly Gln Glu Gly Cys Lys Ser Tyr Val Phe Cys 265 270 275 280	988
ctc cct gac ccc tat ggg tgt tcc tgt gcc aca ggc tgg aag ggt ctg	1036

Leu	Pro	Asp	Pro	Tyr	Gly	Cys	Ser	Cys	Ala	Thr	Gly	Trp	Lys	Gly	Leu	
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cag	tgc	aat	gaa	gca	tgc	cac	cct	ggg	ttt	tac	ggg	cca	gat	tgt	aag	1084
Gln	Cys	Asn	Glu	Ala	Cys	His	Pro	Gly	Phe	Tyr	Gly	Pro	Asp	Cys	Lys	
			300					305					310			
ctt	agg	tgc	agc	tgc	aac	aat	ggg	qag	atg	tgt	gat	cgc	ttc	caa	gga	1132
Leu	Arg	Cys	Ser	Cys	Asn	Asn	Gly	Glu	Met	Cys	Asp	Arg	Phe	Gln	Gly	
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tgt	ctc	tgc	tct	cca	gga	tgg	cag	ggg	ctc	cag	tgt	gag	aga	gaa	ggc	1180
Cys	Leu	Cys	Ser	Pro	Gly	Trp	Gln	Gly	Leu	Gln	Cys	Glu	Arg	Glu	Gly	
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ata	ccg	agg	atg	acc	cca	aag	ata	gtg	gat	ttg	cca	gat	cat	ata	gaa	1228
Ile	Pro	Arg	Met	Thr	Pro	Lys	Ile	Val	Asp	Leu	Pro	Asp	His	Ile	Glu	
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gta	aac	agt	ggg	aaa	ttt	aat	ccc	att	tgc	aaa	gct	tct	ggc	tgg	ccg	1276
Val	Asn	Ser	Gly	Lys	Phe	Asn	Pro	Ile	Cys	Lys	Ala	Ser	Gly	Trp	Pro	
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cta	cct	act	aat	gaa	gaa	atg	acc	ctg	gtg	aag	ccg	gat	ggg	aca	gtg	1324
Leu	Pro	Thr	Asn	Glu	Glu	Met	Thr	Leu	Val	Lys	Pro	Asp	Gly	Thr	Val	
			380					385					390			
ctc	cat	cca	aaa	gac	ttt	aac	cat	acg	gat	cat	ttc	tca	gta	gcc	ata	1372
Leu	His	Pro	Lys	Asp	Phe	Asn	His	Thr	Asp	His	Phe	Ser	Val	Ala	Ile	
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ttc	acc	atc	cac	cgg	atc	ctc	ccc	cct	gac	tca	gga	gtt	tgg	gtc	tgc	1420
Phe	Thr	Ile	His	Arg	Ile	Leu	Pro	Pro	Asp	Ser	Gly	Val	Trp	Val	Cys	
	410					415					420					
agt	gtg	aac	aca	gtg	gct	ggg	atg	gtg	gaa	aag	ccc	ttc	aac	att	tct	1468
Ser	Val	Asn	Thr	Val	Ala	Gly	Met	Val	Glu	Lys	Pro	Phe	Asn	Ile	Ser	
	425				430					435					440	
gtt	aaa	gtt	ctt	cca	aag	ccc	ctg	aat	gcc	cca	aac	gtg	att	gac	act	1516
Val	Lys	Val	Leu	Pro	Lys	Pro	Leu	Asn	Ala	Pro	Asn	Val	Ile	Asp	Thr	
				445					450					455		
gga	cat	aac	ttt	gct	gtc	atc	aac	atc	agc	tct	gag	cct	tac	ttt	ggg	1564
Gly	His	Asn	Phe	Ala	Val	Ile	Asn	Ile	Ser	Ser	Glu	Pro	Tyr	Phe	Gly	
			460				465						470			
gat	gga	cca	atc	aaa	tcc	aag	aag	ctt	cta	tac	aaa	ccc	gtt	aat	cac	1612
Asp	Gly	Pro	Ile	Lys	Ser	Lys	Lys	Leu	Leu	Tyr	Lys	Pro	Val	Asn	His	
			475				480					485				
tat	gag	gct	tgg	caa	cat	att	caa	gtg	aca	aat	gag	att	gtt	aca	ctc	1660
Tyr	Glu	Ala	Trp	Gln	His	Ile	Gln	Val	Thr	Asn	Glu	Ile	Val	Thr	Leu	
	490					495					500					
aac	tat	ttg	gaa	cct	cgg	aca	gaa	tat	gaa	ctc	tgt	gtg	caa	ctg	gtc	1708
Asn	Tyr	Leu	Glu	Pro	Arg	Thr	Glu	Tyr	Glu	Leu	Cys	Val	Gln	Leu	Val	
	505				510					515					520	
cgt	cgt	gga	gag	ggg	ggg	gaa	ggg	cat	cct	gga	cct	gtg	aga	cgc	ttc	1756
Arg	Arg	Gly	Glu	Gly	Gly	Glu	Gly	His	Pro	Gly	Pro	Val	Arg	Arg	Phe	

525										530					535					
aca	aca	gct	tct	atc	gga	ctc	cct	cct	cca	aga	ggt	cta	aat	ctc	ctg	1804				
Thr	Thr	Ala	Ser	Ile	Gly	Leu	Pro	Pro	Pro	Arg	Gly	Leu	Asn	Leu	Leu					
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cct	aaa	agt	cag	acc	act	cta	aat	ttg	acc	tgg	caa	cca	ata	ttt	cca	1852				
Pro	Lys	Ser	Gln	Thr	Thr	Leu	Asn	Leu	Thr	Trp	Gln	Pro	Ile	Phe	Pro					
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Ser	Ser	Glu	Asp	Asp	Phe	Tyr	Val	Glu	Val	Glu	Arg	Arg	Ser	Val	Gln					
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Lys	Ser	Asp	Gln	Gln	Asn	Ile	Lys	Val	Pro	Gly	Asn	Leu	Thr	Ser	Val					
		585			590					595					600					
cta	ctt	aac	aac	tta	cat	ccc	agg	gag	cag	tac	gtg	gtc	cga	gct	aga	1996				
Leu	Leu	Asn	Asn	Leu	His	Pro	Arg	Glu	Gln	Tyr	Val	Val	Arg	Ala	Arg					
				605					610					615						
gtc	aac	acc	aag	gcc	cag	ggg	gaa	tgg	agt	gaa	gat	ctc	act	gct	tgg	2044				
Val	Asn	Thr	Lys	Ala	Gln	Gly	Glu	Trp	Ser	Glu	Asp	Leu	Thr	Ala	Trp					
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acc	ctt	agt	gac	att	ctt	cct	cct	caa	cca	gaa	aac	atc	aag	att	tcc	2092				
Thr	Leu	Ser	Asp	Ile	Leu	Pro	Pro	Gln	Pro	Glu	Asn	Ile	Lys	Ile	Ser					
			635				640					645								
aac	att	aca	cac	tcc	tcg	gct	gtg	att	tct	tgg	aca	ata	ttg	gat	ggc	2140				
Asn	Ile	Thr	His	Ser	Ser	Ala	Val	Ile	Ser	Trp	Thr	Ile	Leu	Asp	Gly					
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tat	tct	att	tct	tct	att	act	atc	cgt	tac	aag	gtt	caa	ggc	aag	aat	2188				
Tyr	Ser	Ile	Ser	Ser	Ile	Thr	Ile	Arg	Tyr	Lys	Val	Gln	Gly	Lys	Asn					
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gaa	gac	cag	cac	gtt	gat	gtg	aag	ata	aag	aat	gcc	acc	atc	att	cag	2236				
Glu	Asp	Gln	His	Val	Asp	Val	Lys	Ile	Lys	Asn	Ala	Thr	Ile	Ile	Gln					
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tat	cag	ctc	aag	ggc	cta	gag	cct	gaa	aca	gca	tac	cag	gtg	gac	att	2284				
Tyr	Gln	Leu	Lys	Gly	Leu	Glu	Pro	Glu	Thr	Ala	Tyr	Gln	Val	Asp	Ile					
			700					705					710							
ttt	gca	gag	aac	aac	ata	ggg	tca	agc	aac	cca	gcc	ttt	tct	cat	gaa	2332				
Phe	Ala	Glu	Asn	Asn	Ile	Gly	Ser	Ser	Asn	Pro	Ala	Phe	Ser	His	Glu					
			715				720					725								
ctg	gtg	acc	ctc	cca	gaa	tct	caa	gca	cca	gcg	gac	ctc	gga	ggg	ggg	2380				
Leu	Val	Thr	Leu	Pro	Glu	Ser	Gln	Ala	Pro	Ala	Asp	Leu	Gly	Gly	Gly					
			730			735					740									
aag	atg	ctg	ctt	ata	gcc	atc	ctt	ggc	tct	gct	gga	atg	acc	tgc	ctg	2428				
Lys	Met	Leu	Leu	Ile	Ala	Ile	Leu	Gly	Ser	Ala	Gly	Met	Thr	Cys	Leu					
				750					755						760					
act	gtg	ctg	ttg	gcc	ttt	ctg	atc	ata	ttg	caa	ttg	aag	agg	gca	aat	2476				
Thr	Val	Leu	Leu	Ala	Phe	Leu	Ile	Ile	Leu	Gln	Leu	Lys	Arg	Ala	Asn					
				765					770					775						

gtg caa agg aga atg gcc caa gcc ttc caa aac gtg agg gaa gaa cca Val Gln Arg Arg Met Ala Gln Ala Phe Gln Asn Val Arg Glu Glu Pro 780 785 790	2524
gct gtg cag ttc aac tca ggg act ctg gcc cta aac agg aag gtc aaa Ala Val Gln Phe Asn Ser Gly Thr Leu Ala Leu Asn Arg Lys Val Lys 795 800 805	2572
aac aac cca gat cct aca att tat cca gtg ctt gac tgg aat gac atc Asn Asn Pro Asp Pro Thr Ile Tyr Pro Val Leu Asp Trp Asn Asp Ile 810 815 820	2620
aaa ttt caa gat gtg att ggg gag ggc aat ttt ggc caa gtt ctt aag Lys Phe Gln Asp Val Ile Gly Glu Gly Asn Phe Gly Gln Val Leu Lys 825 830 835 840	2668
gcg cgc atc aag aag gat ggg tta cgg atg gat gct gcc atc aaa aga Ala Arg Ile Lys Lys Asp Gly Leu Arg Met Asp Ala Ala Ile Lys Arg 845 850 855	2716
atg aaa gaa tat gcc tcc aaa gat gat cac agg gac ttt gca gga gaa Met Lys Glu Tyr Ala Ser Lys Asp Asp His Arg Asp Phe Ala Gly Glu 860 865 870	2764
ctg gaa gtt ctt tgt aaa ctt gga cac cat cca aac atc atc aat ctc Leu Glu Val Leu Cys Lys Leu Gly His His Pro Asn Ile Ile Asn Leu 875 880 885	2812
tta gga gca tgt gaa cat cga ggc tac ttg tac ctg gcc att gag tac Leu Gly Ala Cys Glu His Arg Gly Tyr Leu Tyr Leu Ala Ile Glu Tyr 890 895 900	2860
gcg ccc cat gga aac ctt ctg gac ttc ctt cgc aag agc cgt gtg ctg Ala Pro His Gly Asn Leu Leu Asp Phe Leu Arg Lys Ser Arg Val Leu 905 910 915 920	2908
gag acg gac cca gca ttt gcc att gcc aat agc acc gcg tcc aca ctg Glu Thr Asp Pro Ala Phe Ala Ile Ala Asn Ser Thr Ala Ser Thr Leu 925 930 935	2956
tcc tcc cag cag ctc ctt cac ttc gct gcc gac gtg gcc cgg ggc atg Ser Ser Gln Gln Leu Leu His Phe Ala Ala Asp Val Ala Arg Gly Met 940 945 950	3004
gac tac ttg agc caa aaa cag ttt atc cac agg gat ctg gct gcc aga Asp Tyr Leu Ser Gln Lys Gln Phe Ile His Arg Asp Leu Ala Ala Arg 955 960 965	3052
aac att tta gtt ggt gaa aac tat gtg gca aaa ata gca gat ttt gga Asn Ile Leu Val Gly Glu Asn Tyr Val Ala Lys Ile Ala Asp Phe Gly 970 975 980	3100
ttg tcc cga ggt caa gag gtg tac gtg aaa aag aca atg gga agg ctc Leu Ser Arg Gly Gln Glu Val Tyr Val Lys Lys Thr Met Gly Arg Leu 985 990 995 1000	3148
cca gtg cgc tgg atg gcc atc gag tca ctg aat tac agt gtg tac Pro Val Arg Trp Met Ala Ile Glu Ser Leu Asn Tyr Ser Val Tyr 1005 1010 1015	3193

aca acc aac agt gat gta tgg tcc tat ggt gtg tta cta tgg gag	3238
Thr Thr Asn Ser Asp Val Trp Ser Tyr Gly Val Leu Leu Trp Glu	
1020 1025 1030	
att gtt agc tta gga ggc aca ccc tac tgc ggg atg act tgt gca	3283
Ile Val Ser Leu Gly Gly Thr Pro Tyr Cys Gly Met Thr Cys Ala	
1035 1040 1045	
gaa ctc tac gag aag ctg ccc cag ggc tac aga ctg gag aag ccc	3328
Glu Leu Tyr Glu Lys Leu Pro Gln Gly Tyr Arg Leu Glu Lys Pro	
1050 1055 1060	
ctg aac tgt gat gat gag gtg tat gat cta atg aga caa tgc tgg	3373
Leu Asn Cys Asp Asp Glu Val Tyr Asp Leu Met Arg Gln Cys Trp	
1065 1070 1075	
cgg gag aag cct tat gag agg cca tca ttt gcc cag ata ttg gtg	3418
Arg Glu Lys Pro Tyr Glu Arg Pro Ser Phe Ala Gln Ile Leu Val	
1080 1085 1090	
tcc tta aac aga atg tta gag gag cga aag acc tac gtg aat acc	3463
Ser Leu Asn Arg Met Leu Glu Glu Arg Lys Thr Tyr Val Asn Thr	
1095 1100 1105	
acg ctt tat gag aag ttt act tat gca gga att gac tgt tct gct	3508
Thr Leu Tyr Glu Lys Phe Thr Tyr Ala Gly Ile Asp Cys Ser Ala	
1110 1115 1120	
gaa gaa gcg gcc tag gacagaacat ctgtataccc tctgtttccc tttcactggc	3563
Glu Glu Ala Ala	
atgggagacc cttgacaact gctgagaaaa catgcctctg ccaaaggatg tgatatataa	3623
gtgtacatat gtgctggaat tctaacaagt catagggttaa tatttaagac actgaaaaat	3683
ctaagtgata taaatcagat tcttctctct cattttatcc ctcacctgta gcatgccagt	3743
cccgtttcat ttagtcatgt gaccactctg tcttggtgtt ccacagcctg caagttcagt	3803
ccaggatgct aacatctaaa aatagactta aatctcattg cttacaagcc taagaatctt	3863
tagagaagta tacataagtt taggataaaa taatgggatt ttcttttctt ttctctggta	3923
atattgactt gtatatttta agaaataaca gaaagcctgg gtgacatttg ggagacatgt	3983
gacatttata tattgaatta atatccctac atgtattgca cattgtaaaa agtttttagtt	4043
ttgatgagtt gtgagtttac cttgtatact gtaggcacac tttgactga tatatcatga	4103
gtgaataaat gtcttgccta ctcaaaaaaa aaaaa	4138
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<213> Homo sapiens	
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Met Asp Ser Leu Ala Ser Leu Val Leu Cys Gly Val Ser Leu Leu Leu	

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Ser Gly Thr Val Glu Gly Ala Met Asp Leu Ile Leu Ile Asn Ser Leu	20	25	30
Pro Leu Val Ser Asp Ala Glu Thr Ser Leu Thr Cys Ile Ala Ser Gly	35	40	45
Trp Arg Pro His Glu Pro Ile Thr Ile Gly Arg Asp Phe Glu Ala Leu	50	55	60
Met Asn Gln His Gln Asp Pro Leu Glu Val Thr Gln Asp Val Thr Arg	65	70	75
Glu Trp Ala Lys Lys Val Val Trp Lys Arg Glu Lys Ala Ser Lys Ile	85	90	95
Asn Gly Ala Tyr Phe Cys Glu Gly Arg Val Arg Gly Glu Ala Ile Arg	100	105	110
Ile Arg Thr Met Lys Met Arg Gln Gln Ala Ser Phe Leu Pro Ala Thr	115	120	125
Leu Thr Met Thr Val Asp Lys Gly Asp Asn Val Asn Ile Ser Phe Lys	130	135	140
Lys Val Leu Ile Lys Glu Glu Asp Ala Val Ile Tyr Lys Asn Gly Ser	145	150	155
Phe Ile His Ser Val Pro Arg His Glu Val Pro Asp Ile Leu Glu Val	165	170	175
His Leu Pro His Ala Gln Pro Gln Asp Ala Gly Val Tyr Ser Ala Arg	180	185	190
Tyr Ile Gly Gly Asn Leu Phe Thr Ser Ala Phe Thr Arg Leu Ile Val	195	200	205
Arg Arg Cys Glu Ala Gln Lys Trp Gly Pro Glu Cys Asn His Leu Cys	210	215	220
Thr Ala Cys Met Asn Asn Gly Val Cys His Glu Asp Thr Gly Glu Cys	225	230	235
Ile Cys Pro Pro Gly Phe Met Gly Arg Thr Cys Glu Lys Ala Cys Glu	245	250	255

Leu His Thr Phe Gly Arg Thr Cys Lys Glu Arg Cys Ser Gly Gln Glu  
 260 265 270

Gly Cys Lys Ser Tyr Val Phe Cys Leu Pro Asp Pro Tyr Gly Cys Ser  
 275 280 285

Cys Ala Thr Gly Trp Lys Gly Leu Gln Cys Asn Glu Ala Cys His Pro  
 290 295 300

Gly Phe Tyr Gly Pro Asp Cys Lys Leu Arg Cys Ser Cys Asn Asn Gly  
 305 310 315 320

Glu Met Cys Asp Arg Phe Gln Gly Cys Leu Cys Ser Pro Gly Trp Gln  
 325 330 335

Gly Leu Gln Cys Glu Arg Glu Gly Ile Pro Arg Met Thr Pro Lys Ile  
 340 345 350

Val Asp Leu Pro Asp His Ile Glu Val Asn Ser Gly Lys Phe Asn Pro  
 355 360 365

Ile Cys Lys Ala Ser Gly Trp Pro Leu Pro Thr Asn Glu Glu Met Thr  
 370 375 380

Leu Val Lys Pro Asp Gly Thr Val Leu His Pro Lys Asp Phe Asn His  
 385 390 395 400

Thr Asp His Phe Ser Val Ala Ile Phe Thr Ile His Arg Ile Leu Pro  
 405 410 415

Pro Asp Ser Gly Val Trp Val Cys Ser Val Asn Thr Val Ala Gly Met  
 420 425 430

Val Glu Lys Pro Phe Asn Ile Ser Val Lys Val Leu Pro Lys Pro Leu  
 435 440 445

Asn Ala Pro Asn Val Ile Asp Thr Gly His Asn Phe Ala Val Ile Asn  
 450 455 460

Ile Ser Ser Glu Pro Tyr Phe Gly Asp Gly Pro Ile Lys Ser Lys Lys  
 465 470 475 480

Leu Leu Tyr Lys Pro Val Asn His Tyr Glu Ala Trp Gln His Ile Gln  
 485 490 495

Val Thr Asn Glu Ile Val Thr Leu Asn Tyr Leu Glu Pro Arg Thr Glu  
500 505 510

Tyr Glu Leu Cys Val Gln Leu Val Arg Arg Gly Glu Gly Gly Glu Gly  
515 520 525

His Pro Gly Pro Val Arg Arg Phe Thr Thr Ala Ser Ile Gly Leu Pro  
530 535 540

Pro Pro Arg Gly Leu Asn Leu Leu Pro Lys Ser Gln Thr Thr Leu Asn  
545 550 555 560

Leu Thr Trp Gln Pro Ile Phe Pro Ser Ser Glu Asp Asp Phe Tyr Val  
565 570 575

Glu Val Glu Arg Arg Ser Val Gln Lys Ser Asp Gln Gln Asn Ile Lys  
580 585 590

Val Pro Gly Asn Leu Thr Ser Val Leu Leu Asn Asn Leu His Pro Arg  
595 600 605

Glu Gln Tyr Val Val Arg Ala Arg Val Asn Thr Lys Ala Gln Gly Glu  
610 615 620

Trp Ser Glu Asp Leu Thr Ala Trp Thr Leu Ser Asp Ile Leu Pro Pro  
625 630 635 640

Gln Pro Glu Asn Ile Lys Ile Ser Asn Ile Thr His Ser Ser Ala Val  
645 650 655

Ile Ser Trp Thr Ile Leu Asp Gly Tyr Ser Ile Ser Ser Ile Thr Ile  
660 665 670

Arg Tyr Lys Val Gln Gly Lys Asn Glu Asp Gln His Val Asp Val Lys  
675 680 685

Ile Lys Asn Ala Thr Ile Ile Gln Tyr Gln Leu Lys Gly Leu Glu Pro  
690 695 700

Glu Thr Ala Tyr Gln Val Asp Ile Phe Ala Glu Asn Asn Ile Gly Ser  
705 710 715 720

Ser Asn Pro Ala Phe Ser His Glu Leu Val Thr Leu Pro Glu Ser Gln  
725 730 735

Ala Pro Ala Asp Leu Gly Gly Gly Lys Met Leu Leu Ile Ala Ile Leu  
740 745 750

Gly Ser Ala Gly Met Thr Cys Leu Thr Val Leu Leu Ala Phe Leu Ile  
755 760 765

Ile Leu Gln Leu Lys Arg Ala Asn Val Gln Arg Arg Met Ala Gln Ala  
770 775 780

Phe Gln Asn Val Arg Glu Glu Pro Ala Val Gln Phe Asn Ser Gly Thr  
785 790 795 800

Leu Ala Leu Asn Arg Lys Val Lys Asn Asn Pro Asp Pro Thr Ile Tyr  
805 810 815

Pro Val Leu Asp Trp Asn Asp Ile Lys Phe Gln Asp Val Ile Gly Glu  
820 825 830

Gly Asn Phe Gly Gln Val Leu Lys Ala Arg Ile Lys Lys Asp Gly Leu  
835 840 845

Arg Met Asp Ala Ala Ile Lys Arg Met Lys Glu Tyr Ala Ser Lys Asp  
850 855 860

Asp His Arg Asp Phe Ala Gly Glu Leu Glu Val Leu Cys Lys Leu Gly  
865 870 875 880

His His Pro Asn Ile Ile Asn Leu Leu Gly Ala Cys Glu His Arg Gly  
885 890 895

Tyr Leu Tyr Leu Ala Ile Glu Tyr Ala Pro His Gly Asn Leu Leu Asp  
900 905 910

Phe Leu Arg Lys Ser Arg Val Leu Glu Thr Asp Pro Ala Phe Ala Ile  
915 920 925

Ala Asn Ser Thr Ala Ser Thr Leu Ser Ser Gln Gln Leu Leu His Phe  
930 935 940

Ala Ala Asp Val Ala Arg Gly Met Asp Tyr Leu Ser Gln Lys Gln Phe  
945 950 955 960

Ile His Arg Asp Leu Ala Ala Arg Asn Ile Leu Val Gly Glu Asn Tyr  
965 970 975

Val Ala Lys Ile Ala Asp Phe Gly Leu Ser Arg Gly Gln Glu Val Tyr

980

985

990

Val Lys Lys Thr Met Gly Arg Leu Pro Val Arg Trp Met Ala Ile Glu  
 995 1000 1005

Ser Leu Asn Tyr Ser Val Tyr Thr Thr Asn Ser Asp Val Trp Ser  
 1010 1015 1020

Tyr Gly Val Leu Leu Trp Glu Ile Val Ser Leu Gly Gly Thr Pro  
 1025 1030 1035

Tyr Cys Gly Met Thr Cys Ala Glu Leu Tyr Glu Lys Leu Pro Gln  
 1040 1045 1050

Gly Tyr Arg Leu Glu Lys Pro Leu Asn Cys Asp Asp Glu Val Tyr  
 1055 1060 1065

Asp Leu Met Arg Gln Cys Trp Arg Glu Lys Pro Tyr Glu Arg Pro  
 1070 1075 1080

Ser Phe Ala Gln Ile Leu Val Ser Leu Asn Arg Met Leu Glu Glu  
 1085 1090 1095

Arg Lys Thr Tyr Val Asn Thr Thr Leu Tyr Glu Lys Phe Thr Tyr  
 1100 1105 1110

Ala Gly Ile Asp Cys Ser Ala Glu Glu Ala Ala  
 1115 1120

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 <213> Homo sapiens

<400> 9

Arg Gln Lys Val Ser His Gly Arg Glu Arg Pro Ser Ala Arg Leu Ser  
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Ile Arg Arg Asp Arg Pro Leu Ser Val His Leu Asn Leu Gly Gln Lys  
 20 25 30

Gly Asn Arg Lys Thr Ser Cys Pro Ile Lys Ile Asn Gln Phe Glu Gly  
 35 40 45

His Phe Met Lys Leu Gln Ala Asp Ser Asn Tyr Leu Leu Ser Lys Glu  
 50 55 60

Tyr Glu Glu Leu Lys Asp Val Gly Arg Asn Gln Ser Cys Asp Ile Ala  
 65 70 75 80

Leu Leu Pro Glu Asn Arg Gly Lys Asn Arg Tyr Asn Asn Ile Leu Pro  
 85 90 95

Tyr Asp Ala Thr Arg Val Lys Leu Ser Asn Val Asp Asp Asp Pro Cys  
 100 105 110

Ser Asp Tyr Ile Asn Ala Ser Tyr Ile Pro Gly Asn Asn Phe Arg Arg  
 115 120 125

Glu Tyr Ile Val Thr Gln Gly Pro Leu Pro Gly Thr Lys Asp Asp Phe  
 130 135 140

Trp Lys Met Val Trp Glu Gln Asn Val His Asn Ile Val Met Val Thr  
 145 150 155 160

Gln Cys Val Glu Lys Gly Arg Val Lys Cys Asp His Tyr Trp Pro Ala  
 165 170 175

Asp Gln Asp Ser Leu Tyr Tyr Gly Asp Leu Ile Leu Gln Met Leu Ser  
 180 185 190

Glu Ser Val Leu Pro Glu Trp Thr Ile Arg Glu Phe Lys Ile Cys Gly  
 195 200 205

Glu Glu Gln Leu Asp Ala His Arg Leu Ile Arg His Phe His Tyr Thr  
 210 215 220

Val Trp Pro Asp His Gly Val Pro Glu Thr Thr Gln Ser Leu Ile Gln  
 225 230 235 240

Phe Val Arg Thr Val Arg Asp Tyr Ile Asn Arg Ser Pro Gly Ala Gly  
 245 250 255

Pro Thr Val Val His Cys Ser Ala Gly Val Gly Arg Thr Gly Thr Phe  
 260 265 270

Ile Ala Leu Asp Arg Ile Leu Gln Gln Leu Asp Ser Lys Asp Ser Val  
 275 280 285

Asp Ile Tyr Gly Ala Val His Asp Leu Arg Leu His Arg Val His Met  
 290 295 300

Val Gln Thr Glu Cys Gln Tyr Val Tyr Leu His Gln Cys Val Arg Asp  
305 310 315 320

Val Leu Arg Ala Arg Lys Leu Arg Ser Glu Gln Glu Asn Pro Leu Phe  
325 330 335

Pro Ile Tyr Glu Asn Val Asn Pro Glu Tyr His Arg Asp Pro Val Tyr  
340 345 350

Ser Arg His  
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<212> DNA  
<213> Homo sapiens

<220>  
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Lys Arg Ala Asn Gly Gly Glu Leu Lys Thr Gly Tyr Leu Ser Ile Val  
1 5 10 15  
atg gat cca gat gaa ctc cca ttg gat gaa cat tgt gaa cga ctg cct 96  
Met Asp Pro Asp Glu Leu Pro Leu Asp Glu His Cys Glu Arg Leu Pro  
20 25 30  
tat gat gcc agc aaa tgg gaa ttc ccc aga gac cgg ctg aag cta ggt 144  
Tyr Asp Ala Ser Lys Trp Glu Phe Pro Arg Asp Arg Leu Lys Leu Gly  
35 40 45  
aag cct ctt ggc cgt ggt gcc ttt ggc caa gtg att gaa gca gat gcc 192  
Lys Pro Leu Gly Arg Gly Ala Phe Gly Gln Val Ile Glu Ala Asp Ala  
50 55 60  
ttt gga att gac aag aca gca act tgc agg aca gta gca gtc aaa atg 240  
Phe Gly Ile Asp Lys Thr Ala Thr Cys Arg Thr Val Ala Val Lys Met  
65 70 75 80  
ttg aaa gaa gga gca aca cac agt gag cat cga gct ctc atg tct gaa 288  
Leu Lys Glu Gly Ala Thr His Ser Glu His Arg Ala Leu Met Ser Glu  
85 90 95  
ctc aag atc ctc att cat att ggt cac cat ctc aat gtg gtc aac ctt 336  
Leu Lys Ile Leu Ile His Ile Gly His His Leu Asn Val Val Asn Leu  
100 105 110  
cta ggt gcc tgt acc aag cca gga ggg cca ctc atg gtg att gtg gaa 384  
Leu Gly Ala Cys Thr Lys Pro Gly Gly Pro Leu Met Val Ile Val Glu  
115 120 125  
ttc tgc aaa ttt gga aac ctg tcc act tac ctg agg agc aag aga aat 432  
Phe Cys Lys Phe Gly Asn Leu Ser Thr Tyr Leu Arg Ser Lys Arg Asn

130	135	140	
gaa ttt gtc ccc tac aag acc aaa ggg gca cga ttc cgt caa ggg aaa Glu Phe Val Pro Tyr Lys Thr Lys Gly Ala Arg Phe Arg Gln Gly Lys 145 150 155 160			480
gac tac gtt gga gca atc cct gtg gat ctg aaa cgg cgc ttg gac agc Asp Tyr Val Gly Ala Ile Pro Val Asp Leu Lys Arg Arg Leu Asp Ser 165 170 175			528
atc acc agt agc cag agc tca gcc agc tct gga ttt gtg gag gag aag Ile Thr Ser Ser Gln Ser Ser Ala Ser Ser Gly Phe Val Glu Glu Lys 180 185 190			576
tcc ctc agt gat gta gaa gaa gag gaa gct cct gaa gat ctg tat aag Ser Leu Ser Asp Val Glu Glu Glu Ala Pro Glu Asp Leu Tyr Lys 195 200 205			624
gac ttc ctg acc ttg gag cat ctc atc tgt tac agc ttc caa gtg gct Asp Phe Leu Thr Leu Glu His Leu Ile Cys Tyr Ser Phe Gln Val Ala 210 215 220			672
aag ggc atg gag ttc ttg gca tcg cga aag tgt atc cac agg gac ctg Lys Gly Met Glu Phe Leu Ala Ser Arg Lys Cys Ile His Arg Asp Leu 225 230 235 240			720
gcg gca cga aat atc ctc tta tcg gag aag aac gtg gtt aaa atc tgt Ala Ala Arg Asn Ile Leu Leu Ser Glu Lys Asn Val Val Lys Ile Cys 245 250 255			768
gac ttt ggc ttg gcc cgg gat att tat aaa gat cca gat tat gtc aga Asp Phe Gly Leu Ala Arg Asp Ile Tyr Lys Asp Pro Asp Tyr Val Arg 260 265 270			816
aaa gga gat gct cgc ctc cct ttg aaa tgg atg gcc cca gaa aca att Lys Gly Asp Ala Arg Leu Pro Leu Lys Trp Met Ala Pro Glu Thr Ile 275 280 285			864
ttt gac aga gtg tac aca atc cag agt gac gtc tgg tct ttt ggt gtt Phe Asp Arg Val Tyr Thr Ile Gln Ser Asp Val Trp Ser Phe Gly Val 290 295 300			912
ttg ctg tgg gaa ata ttt tcc tta ggt gct tct cca tat cct ggg gta Leu Leu Trp Glu Ile Phe Ser Leu Gly Ala Ser Pro Tyr Pro Gly Val 305 310 315 320			960
aag att gat gaa gaa ttt tgt agg cga ttg aaa gaa gga act aga atg Lys Ile Asp Glu Glu Phe Cys Arg Arg Leu Lys Glu Gly Thr Arg Met 325 330 335			1008
agg gcc cct gat tat act aca cca gaa atg tac cag acc atg ctg gac Arg Ala Pro Asp Tyr Thr Thr Pro Glu Met Tyr Gln Thr Met Leu Asp 340 345 350			1056
tgc tgg cac ggg gag ccc agt cag aga ccc acg ttt tca gag ttg gtg Cys Trp His Gly Glu Pro Ser Gln Arg Pro Thr Phe Ser Glu Leu Val 355 360 365			1104
gaa cat ttg gga aat ctc ttg caa gct aat gct cag cag gat ggc aaa Glu His Leu Gly Asn Leu Leu Gln Ala Asn Ala Gln Gln Asp Gly Lys 370 375 380			1152

gac tac att gtt ctt ccg ata tca gag act ttg agc atg gaa gag gat Asp Tyr Ile Val Leu Pro Ile Ser Glu Thr Leu Ser Met Glu Glu Asp 385 390 395 400	1200
tct gga ctc tct ctg cct acc tca cct gtt tcc tgt atg gag gag gag Ser Gly Leu Ser Leu Pro Thr Ser Pro Val Ser Cys Met Glu Glu Glu 405 410 415	1248
gaa gta tgt gac ccc aaa ttc cat tat gac aac aca gca gga atc agt Glu Val Cys Asp Pro Lys Phe His Tyr Asp Asn Thr Ala Gly Ile Ser 420 425 430	1296
cag tat ctg cag aac agt aag cga aag agc cgg cct gtg agt gta aaa Gln Tyr Leu Gln Asn Ser Lys Arg Lys Ser Arg Pro Val Ser Val Lys 435 440 445	1344
aca ttt gaa gat atc ccg tta gaa gaa cca gaa gta aaa gta atc cca Thr Phe Glu Asp Ile Pro Leu Glu Glu Pro Glu Val Lys Val Ile Pro 450 455 460	1392
gat gac aac cag acg gac agt ggt atg gtt ctt gcc tca gaa gag ctg Asp Asp Asn Gln Thr Asp Ser Gly Met Val Leu Ala Ser Glu Glu Leu 465 470 475 480	1440
aaa act ttg gaa gac aga acc aaa tta tct cca tct ttt ggt gga atg Lys Thr Leu Glu Asp Arg Thr Lys Leu Ser Pro Ser Phe Gly Gly Met 485 490 495	1488
gtg ccc agc aaa agc agg gag tct gtg gca tct gaa ggc tca aac cag Val Pro Ser Lys Ser Arg Glu Ser Val Ala Ser Glu Gly Ser Asn Gln 500 505 510	1536
aca agc ggc tac cag tcc gga tat cac tcc gat gac aca gac acc acc Thr Ser Gly Tyr Gln Ser Gly Tyr His Ser Asp Asp Thr Asp Thr Thr 515 520 525	1584
gtg tac tcc agt gag gaa gca gaa ctt tta aag ctg ata gag att gga Val Tyr Ser Ser Glu Glu Ala Glu Leu Leu Lys Leu Ile Glu Ile Gly 530 535 540	1632
gtg caa acc ggt agc aca gcc cag att ctc cag cct gac tcg ggg acc Val Gln Thr Gly Ser Thr Ala Gln Ile Leu Gln Pro Asp Ser Gly Thr 545 550 555 560	1680
aca ctg agc tct cct cct gtt taa Thr Leu Ser Ser Pro Pro Val 565	1704

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 <212> PRT  
 <213> Homo sapiens

<400> 11

Lys Arg Ala Asn Gly Gly Glu Leu Lys Thr Gly Tyr Leu Ser Ile Val
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Met Asp Pro Asp Glu Leu Pro Leu Asp Glu His Cys Glu Arg Leu Pro  
 20 25 30

Tyr Asp Ala Ser Lys Trp Glu Phe Pro Arg Asp Arg Leu Lys Leu Gly  
 35 40 45

Lys Pro Leu Gly Arg Gly Ala Phe Gly Gln Val Ile Glu Ala Asp Ala  
 50 55 60

Phe Gly Ile Asp Lys Thr Ala Thr Cys Arg Thr Val Ala Val Lys Met  
 65 70 75 80

Leu Lys Glu Gly Ala Thr His Ser Glu His Arg Ala Leu Met Ser Glu  
 85 90 95

Leu Lys Ile Leu Ile His Ile Gly His His Leu Asn Val Val Asn Leu  
 100 105 110

Leu Gly Ala Cys Thr Lys Pro Gly Gly Pro Leu Met Val Ile Val Glu  
 115 120 125

Phe Cys Lys Phe Gly Asn Leu Ser Thr Tyr Leu Arg Ser Lys Arg Asn  
 130 135 140

Glu Phe Val Pro Tyr Lys Thr Lys Gly Ala Arg Phe Arg Gln Gly Lys  
 145 150 155 160

Asp Tyr Val Gly Ala Ile Pro Val Asp Leu Lys Arg Arg Leu Asp Ser  
 165 170 175

Ile Thr Ser Ser Gln Ser Ser Ala Ser Ser Gly Phe Val Glu Glu Lys  
 180 185 190

Ser Leu Ser Asp Val Glu Glu Glu Glu Ala Pro Glu Asp Leu Tyr Lys  
 195 200 205

Asp Phe Leu Thr Leu Glu His Leu Ile Cys Tyr Ser Phe Gln Val Ala  
 210 215 220

Lys Gly Met Glu Phe Leu Ala Ser Arg Lys Cys Ile His Arg Asp Leu  
 225 230 235 240

Ala Ala Arg Asn Ile Leu Leu Ser Glu Lys Asn Val Val Lys Ile Cys  
 245 250 255

Asp Phe Gly Leu Ala Arg Asp Ile Tyr Lys Asp Pro Asp Tyr Val Arg

260								265					270				
Lys	Gly	Asp	Ala	Arg	Leu	Pro	Leu	Lys	Trp	Met	Ala	Pro	Glu	Thr	Ile		
		275					280					285					
Phe	Asp	Arg	Val	Tyr	Thr	Ile	Gln	Ser	Asp	Val	Trp	Ser	Phe	Gly	Val		
	290					295					300						
Leu	Leu	Trp	Glu	Ile	Phe	Ser	Leu	Gly	Ala	Ser	Pro	Tyr	Pro	Gly	Val		
305					310					315					320		
Lys	Ile	Asp	Glu	Glu	Phe	Cys	Arg	Arg	Leu	Lys	Glu	Gly	Thr	Arg	Met		
				325					330					335			
Arg	Ala	Pro	Asp	Tyr	Thr	Thr	Pro	Glu	Met	Tyr	Gln	Thr	Met	Leu	Asp		
			340					345					350				
Cys	Trp	His	Gly	Glu	Pro	Ser	Gln	Arg	Pro	Thr	Phe	Ser	Glu	Leu	Val		
		355					360					365					
Glu	His	Leu	Gly	Asn	Leu	Leu	Gln	Ala	Asn	Ala	Gln	Gln	Asp	Gly	Lys		
	370					375					380						
Asp	Tyr	Ile	Val	Leu	Pro	Ile	Ser	Glu	Thr	Leu	Ser	Met	Glu	Glu	Asp		
385					390					395					400		
Ser	Gly	Leu	Ser	Leu	Pro	Thr	Ser	Pro	Val	Ser	Cys	Met	Glu	Glu	Glu		
				405					410					415			
Glu	Val	Cys	Asp	Pro	Lys	Phe	His	Tyr	Asp	Asn	Thr	Ala	Gly	Ile	Ser		
			420					425					430				
Gln	Tyr	Leu	Gln	Asn	Ser	Lys	Arg	Lys	Ser	Arg	Pro	Val	Ser	Val	Lys		
		435					440					445					
Thr	Phe	Glu	Asp	Ile	Pro	Leu	Glu	Glu	Pro	Glu	Val	Lys	Val	Ile	Pro		
	450					455					460						
Asp	Asp	Asn	Gln	Thr	Asp	Ser	Gly	Met	Val	Leu	Ala	Ser	Glu	Glu	Leu		
465					470					475					480		
Lys	Thr	Leu	Glu	Asp	Arg	Thr	Lys	Leu	Ser	Pro	Ser	Phe	Gly	Gly	Met		
				485					490					495			
Val	Pro	Ser	Lys	Ser	Arg	Glu	Ser	Val	Ala	Ser	Glu	Gly	Ser	Asn	Gln		
			500					505					510				

Thr Ser Gly Tyr Gln Ser Gly Tyr His Ser Asp Asp Thr Asp Thr Thr  
515 520 525

Val Tyr Ser Ser Glu Glu Ala Glu Leu Leu Lys Leu Ile Glu Ile Gly  
530 535 540

Val Gln Thr Gly Ser Thr Ala Gln Ile Leu Gln Pro Asp Ser Gly Thr  
545 550 555 560

Thr Leu Ser Ser Pro Pro Val  
565

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<212> DNA  
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<222> (1)..(1059)

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Arg Lys Val Lys Asn Asn Pro Asp Pro Thr Ile Tyr Pro Val Leu Asp  
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Gln Val Leu Lys Ala Arg Ile Lys Lys Asp Gly Leu Arg Met Asp Ala  
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Ala Ile Lys Arg Met Lys Glu Tyr Ala Ser Lys Asp Asp His Arg Asp  
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Phe Ala Gly Glu Leu Glu Val Leu Cys Lys Leu Gly His His Pro Asn  
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Gln Val Leu Lys Ala Arg Ile Lys Lys Asp Gly Leu Arg Met Asp Ala  
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Ile Ile Asn Leu Leu Gly Ala Cys Glu His Arg Gly Tyr Leu Tyr Leu  
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Ser Arg Val Leu Glu Thr Asp Pro Ala Phe Ala Ile Ala Asn Ser Thr  
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Ala Ser Thr Leu Ser Ser Gln Gln Leu Leu His Phe Ala Ala Asp Val  
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Ala Arg Gly Met Asp Tyr Leu Ser Gln Lys Gln Phe Ile His Arg Asp  
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Ala Asp Phe Gly Leu Ser Arg Gly Gln Glu Val Tyr Val Lys Lys Thr  
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Met Gly Arg Leu Pro Val Arg Trp Met Ala Ile Glu Ser Leu Asn Tyr  
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Ser Val Tyr Thr Thr Asn Ser Asp Val Trp Ser Tyr Gly Val Leu Leu  
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Trp Glu Ile Val Ser Leu Gly Gly Thr Pro Tyr Cys Gly Met Thr Cys  
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Val Thr Asn Asp Gly Ser Leu Thr Ser Leu Lys Val Lys Trp Gln Arg	
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Pro Pro Gly Asn Val Asp Ser Tyr Asn Ile Thr Leu Ser His Lys Gly	
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Phe Lys Glu Leu Val Pro Gly Arg Leu Tyr Gln Val Thr Val Ser Cys	
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Tyr Met Ala Thr Val Thr Ser Ile Ser Gly Asp Leu Lys Asn Ser Ser	
445 450 455	
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Ser Val Lys Gly Arg Thr Val Pro Ala Gln Val Thr Asp Leu His Val	
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Ala Asn Gln Gly Met Thr Ser Ser Leu Phe Thr Asn Trp Thr Gln Ala	
475 480 485	
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Gln Gly Asp Val Glu Phe Tyr Gln Val Leu Leu Ile His Glu Asn Val	
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Val Ile Lys Asn Glu Ser Ile Ser Ser Glu Thr Ser Arg Tyr Ser Phe	
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His Ser Leu Lys Ser Gly Ser Leu Tyr Ser Val Val Val Thr Thr Val	

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715 720 725																
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745 750 755 760																
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765 770 775																

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1455	1460	1465	
ggt gga aaa tgc gat	ccc act cag caa aaa	ttc tgt gat gga cca	4470
Gly Gly Lys Cys Asp	Pro Thr Gln Gln Lys	Phe Cys Asp Gly Pro	

	1470	1475	1480	
	ctg aag cca cac act gcc tac aga atc agc att cga gct ttt aca			4515
	Leu Lys Pro His Thr Ala Tyr Arg Ile Ser Ile Arg Ala Phe Thr			
	1485	1490	1495	
	cag ctc ttt gat gag gac ctg aag gaa ttc aca aag cca ctc tat			4560
	Gln Leu Phe Asp Glu Asp Leu Lys Glu Phe Thr Lys Pro Leu Tyr			
	1500	1505	1510	
	tca gac aca ttt ttt tct tta ccc atc act act gaa tca gag ccc			4605
	Ser Asp Thr Phe Phe Ser Leu Pro Ile Thr Thr Glu Ser Glu Pro			
	1515	1520	1525	
	ttg ttt gga gct att gaa ggt gtg agt gct ggt ctg ttt tta att			4650
	Leu Phe Gly Ala Ile Glu Gly Val Ser Ala Gly Leu Phe Leu Ile			
	1530	1535	1540	
	ggc atg cta gtg gct gtt gtt gcc tta ttg atc tgc aga cag aaa			4695
	Gly Met Leu Val Ala Val Val Ala Leu Leu Ile Cys Arg Gln Lys			
	1545	1550	1555	
	gtg agc cat ggt cga gaa aga ccc tct gcc cgt ctg agc att cgt			4740
	Val Ser His Gly Arg Glu Arg Pro Ser Ala Arg Leu Ser Ile Arg			
	1560	1565	1570	
	agg gat cga cca tta tct gtc cac tta aac ctg ggc cag aaa ggt			4785
	Arg Asp Arg Pro Leu Ser Val His Leu Asn Leu Gly Gln Lys Gly			
	1575	1580	1585	
	aac cgg aaa act tct tgt cca ata aaa ata aat cag ttt gaa ggg			4830
	Asn Arg Lys Thr Ser Cys Pro Ile Lys Ile Asn Gln Phe Glu Gly			
	1590	1595	1600	
	cat ttc atg aag cta cag gct gac tcc aac tac ctt cta tcc aag			4875
	His Phe Met Lys Leu Gln Ala Asp Ser Asn Tyr Leu Leu Ser Lys			
	1605	1610	1615	
	gaa tac gag gag tta aaa gac gtg ggc cga aac cag tca tgt gac			4920
	Glu Tyr Glu Glu Leu Lys Asp Val Gly Arg Asn Gln Ser Cys Asp			
	1620	1625	1630	
	att gca ctc ttg ccg gag aat aga ggg aaa aat cga tac aac aat			4965
	Ile Ala Leu Leu Pro Glu Asn Arg Gly Lys Asn Arg Tyr Asn Asn			
	1635	1640	1645	
	ata ttg ccc tat gat gcc acg cga gtg aag ctc tcc aat gta gat			5010
	Ile Leu Pro Tyr Asp Ala Thr Arg Val Lys Leu Ser Asn Val Asp			
	1650	1655	1660	
	gat gat cct tgc tct gac tac atc aat gcc agc tac atc cct ggc			5055
	Asp Asp Pro Cys Ser Asp Tyr Ile Asn Ala Ser Tyr Ile Pro Gly			
	1665	1670	1675	
	aac aac ttc aga aga gaa tac att gtc act cag gga ccg ctt cct			5100
	Asn Asn Phe Arg Arg Glu Tyr Ile Val Thr Gln Gly Pro Leu Pro			
	1680	1685	1690	
	ggc acc aag gat gac ttc tgg aaa atg gtg tgg gaa caa aac gtt			5145
	Gly Thr Lys Asp Asp Phe Trp Lys Met Val Trp Glu Gln Asn Val			
	1695	1700	1705	

cac aac atc gtc atg gtg acc cag tgt gtt gag aag ggc cga gta	5190
His Asn Ile Val Met Val Thr Gln Cys Val Glu Lys Gly Arg Val	
1710 1715 1720	
aag tgt gac cat tac tgg cca gcg gac cag gat tcc ctc tac tat	5235
Lys Cys Asp His Tyr Trp Pro Ala Asp Gln Asp Ser Leu Tyr Tyr	
1725 1730 1735	
ggg gac ctc atc ctg cag atg ctc tca gag tcc gtc ctg cct gag	5280
Gly Asp Leu Ile Leu Gln Met Leu Ser Glu Ser Val Leu Pro Glu	
1740 1745 1750	
tgg acc atc cgg gag ttt aag ata tgc ggt gag gaa cag ctt gat	5325
Trp Thr Ile Arg Glu Phe Lys Ile Cys Gly Glu Glu Gln Leu Asp	
1755 1760 1765	
gca cac aga ctc atc cgc cac ttt cac tat acg gtg tgg cca gac	5370
Ala His Arg Leu Ile Arg His Phe His Tyr Thr Val Trp Pro Asp	
1770 1775 1780	
cat gga gtc cca gaa acc acc cag tct ctg atc cag ttt gtg aga	5415
His Gly Val Pro Glu Thr Thr Gln Ser Leu Ile Gln Phe Val Arg	
1785 1790 1795	
act gtc agg gac tac atc aac aga agc ccg ggt gct ggg ccc act	5460
Thr Val Arg Asp Tyr Ile Asn Arg Ser Pro Gly Ala Gly Pro Thr	
1800 1805 1810	
gtg gtg cac tgc agt gct ggt gtg ggt agg act gga acc ttt att	5505
Val Val His Cys Ser Ala Gly Val Gly Arg Thr Gly Thr Phe Ile	
1815 1820 1825	
gca ttg gac cga atc ctc cag cag tta gac tcc aaa gac tct gtg	5550
Ala Leu Asp Arg Ile Leu Gln Gln Leu Asp Ser Lys Asp Ser Val	
1830 1835 1840	
gac att tat gga gca gtg cac gac cta aga ctt cac agg gtt cac	5595
Asp Ile Tyr Gly Ala Val His Asp Leu Arg Leu His Arg Val His	
1845 1850 1855	
atg gtc cag act gag tgt cag tat gtc tac cta cat cag tgt gta	5640
Met Val Gln Thr Glu Cys Gln Tyr Val Tyr Leu His Gln Cys Val	
1860 1865 1870	
aga gat gtc ctc aga gca aga aag cta ccg agt gaa caa gaa aac	5685
Arg Asp Val Leu Arg Ala Arg Lys Leu Arg Ser Glu Gln Glu Asn	
1875 1880 1885	
ccc ttg ttt cca atc tat gaa aat gtg aat cca gag tat cac aga	5730
Pro Leu Phe Pro Ile Tyr Glu Asn Val Asn Pro Glu Tyr His Arg	
1890 1895 1900	
gat cca gtc tat tca agg cat tga gaatgtacct gaagagctcc tggataaaaa	5784
Asp Pro Val Tyr Ser Arg His	
1905	
ttattcactg tgtgatttgt ttttaaaaac ttgcttcatg ccctacagag gtgccagcta	5844
tttctgttga tactatgtat aatttattaa tctggagaat gtntaaaant ntatataatt	5904

taaaggtaac agatattatt gtacatagtt gtatttttgta gtttcttctg taaatatgta 5964  
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 aaaaaaaaaa 6033

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Glu Ser Lys Ala Ser Ser His Ser Val Ser Ile Gln Trp Arg Ile Leu  
 35 40 45

Gly Ser Pro Cys Asn Phe Ser Leu Ile Tyr Ser Ser Asp Thr Leu Gly  
 50 55 60

Ala Ala Leu Cys Pro Thr Phe Arg Ile Asp Asn Thr Thr Tyr Gly Cys  
 65 70 75 80

Asn Leu Gln Asp Leu Gln Ala Gly Thr Ile Tyr Asn Phe Lys Ile Ile  
 85 90 95

Ser Leu Asp Glu Glu Arg Thr Val Val Leu Gln Thr Asp Pro Leu Pro  
 100 105 110

Pro Ala Arg Phe Gly Val Ser Lys Glu Lys Thr Thr Ser Thr Gly Leu  
 115 120 125

His Val Trp Trp Thr Pro Ser Ser Gly Lys Val Thr Ser Tyr Glu Val  
 130 135 140

Gln Leu Phe Asp Glu Asn Asn Gln Lys Ile Gln Gly Val Gln Ile Gln  
 145 150 155 160

Glu Ser Thr Ser Trp Asn Glu Tyr Thr Phe Phe Asn Leu Thr Ala Gly  
 165 170 175

Ser Lys Tyr Asn Ile Ala Ile Thr Ala Val Ser Gly Gly Lys Arg Ser  
 180 185 190

Phe Ser Val Tyr Thr Asn Gly Ser Thr Val Pro Ser Pro Val Lys Asp  
 195 200 205

Ile Gly Ile Ser Thr Lys Ala Asn Ser Leu Leu Ile Ser Trp Ser His  
 210 215 220

Gly Ser Gly Asn Val Glu Arg Tyr Arg Leu Met Leu Met Asp Lys Gly  
 225 230 235 240

Ile Leu Val His Gly Gly Val Val Asp Lys His Ala Thr Ser Tyr Ala  
 245 250 255

Phe His Gly Leu Thr Pro Gly Tyr Leu Tyr Asn Leu Thr Val Met Thr  
 260 265 270

Glu Ala Ala Gly Leu Gln Asn Tyr Arg Trp Lys Leu Val Arg Thr Ala  
 275 280 285

Pro Met Glu Val Ser Asn Leu Lys Val Thr Asn Asp Gly Ser Leu Thr  
 290 295 300

Ser Leu Lys Val Lys Trp Gln Arg Pro Pro Gly Asn Val Asp Ser Tyr  
 305 310 315 320

Asn Ile Thr Leu Ser His Lys Gly Thr Ile Lys Glu Ser Arg Val Leu  
 325 330 335

Ala Pro Trp Ile Thr Glu Thr His Phe Lys Glu Leu Val Pro Gly Arg  
 340 345 350

Leu Tyr Gln Val Thr Val Ser Cys Val Ser Gly Glu Leu Ser Ala Gln  
 355 360 365

Lys Met Ala Val Gly Arg Thr Phe Pro Leu Ala Val Leu Gln Leu Arg  
 370 375 380

Val Lys His Ala Asn Glu Thr Ser Leu Ser Ile Met Trp Gln Thr Pro  
 385 390 395 400

Val Ala Glu Trp Glu Lys Tyr Ile Ile Ser Leu Ala Asp Arg Asp Leu  
 405 410 415

Leu Leu Ile His Lys Ser Leu Ser Lys Asp Ala Lys Glu Phe Thr Phe  
 420 425 430

Thr Asp Leu Val Pro Gly Arg Lys Tyr Met Ala Thr Val Thr Ser Ile  
 435 440 445

Ser Gly Asp Leu Lys Asn Ser Ser Ser Val Lys Gly Arg Thr Val Pro  
 450 455 460

Ala Gln Val Thr Asp Leu His Val Ala Asn Gln Gly Met Thr Ser Ser  
 465 470 475 480

Leu Phe Thr Asn Trp Thr Gln Ala Gln Gly Asp Val Glu Phe Tyr Gln  
 485 490 495

Val Leu Leu Ile His Glu Asn Val Val Ile Lys Asn Glu Ser Ile Ser  
 500 505 510

Ser Glu Thr Ser Arg Tyr Ser Phe His Ser Leu Lys Ser Gly Ser Leu  
 515 520 525

Tyr Ser Val Val Val Thr Thr Val Ser Gly Gly Ile Ser Ser Arg Gln  
 530 535 540

Val Val Val Glu Gly Arg Thr Val Pro Ser Ser Val Ser Gly Val Thr  
 545 550 555 560

Val Asn Asn Ser Gly Arg Asn Asp Tyr Leu Ser Val Ser Trp Leu Leu  
 565 570 575

Ala Pro Gly Asp Val Asp Asn Tyr Glu Val Thr Leu Ser His Asp Gly  
 580 585 590

Lys Val Val Gln Ser Leu Val Ile Ala Lys Ser Val Arg Glu Cys Ser  
 595 600 605

Phe Ser Ser Leu Thr Pro Gly Arg Leu Tyr Thr Val Thr Ile Thr Thr  
 610 615 620

Arg Ser Gly Lys Tyr Glu Asn His Ser Phe Ser Gln Glu Arg Thr Val  
 625 630 635 640

Pro Asp Lys Val Gln Gly Val Ser Val Ser Asn Ser Ala Arg Ser Asp  
 645 650 655

Tyr Leu Arg Val Ser Trp Val His Ala Thr Gly Asp Phe Asp His Tyr  
 660 665 670

Glu Val Thr Ile Lys Asn Lys Asn Asn Phe Ile Gln Thr Lys Ser Ile

675					680					685					
Pro	Lys	Ser	Glu	Asn	Glu	Cys	Val	Phe	Val	Gln	Leu	Val	Pro	Gly	Arg
	690					695					700				
Leu	Tyr	Ser	Val	Thr	Val	Thr	Thr	Lys	Ser	Gly	Gln	Tyr	Glu	Ala	Asn
705					710					715					720
Glu	Gln	Gly	Asn	Gly	Arg	Thr	Ile	Pro	Glu	Pro	Val	Lys	Asp	Leu	Thr
				725					730					735	
Leu	Arg	Asn	Arg	Ser	Thr	Glu	Asp	Leu	His	Val	Thr	Trp	Ser	Gly	Ala
			740					745					750		
Asn	Gly	Asp	Val	Asp	Gln	Tyr	Glu	Ile	Gln	Leu	Leu	Phe	Asn	Asp	Met
		755					760					765			
Lys	Val	Phe	Pro	Pro	Phe	His	Leu	Val	Asn	Thr	Ala	Thr	Glu	Tyr	Arg
	770					775					780				
Phe	Thr	Ser	Leu	Thr	Pro	Gly	Arg	Gln	Tyr	Lys	Ile	Leu	Val	Leu	Thr
785					790					795					800
Ile	Ser	Gly	Asp	Val	Gln	Gln	Ser	Ala	Phe	Ile	Glu	Gly	Phe	Thr	Val
				805					810					815	
Pro	Ser	Ala	Val	Lys	Asn	Ile	His	Ile	Ser	Pro	Asn	Gly	Ala	Thr	Asp
			820					825					830		
Ser	Leu	Thr	Val	Asn	Trp	Thr	Pro	Gly	Gly	Gly	Asp	Val	Asp	Ser	Tyr
		835					840					845			
Thr	Val	Ser	Ala	Phe	Arg	His	Ser	Gln	Lys	Val	Asp	Ser	Gln	Thr	Ile
	850					855					860				
Pro	Lys	His	Val	Phe	Glu	His	Thr	Phe	His	Arg	Leu	Glu	Ala	Gly	Glu
865					870					875					880
Gln	Tyr	Gln	Ile	Met	Ile	Ala	Ser	Val	Ser	Gly	Ser	Leu	Lys	Asn	Gln
				885					890					895	
Ile	Asn	Val	Val	Gly	Arg	Thr	Val	Pro	Ala	Ser	Val	Gln	Gly	Val	Ile
			900					905					910		
Ala	Asp	Asn	Ala	Tyr	Ser	Ser	Tyr	Ser	Leu	Ile	Val	Ser	Trp	Gln	Lys
		915					920					925			

Ala Ala Gly Val Ala Glu Arg Tyr Asp Ile Leu Leu Leu Thr Glu Asn  
 930 935 940

Gly Ile Leu Leu Arg Asn Thr Ser Glu Pro Ala Thr Thr Lys Gln His  
 945 950 955 960

Lys Phe Glu Asp Leu Thr Pro Gly Lys Lys Tyr Lys Ile Gln Ile Leu  
 965 970 975

Thr Val Ser Gly Gly Leu Phe Ser Lys Glu Ala Gln Thr Glu Gly Arg  
 980 985 990

Thr Val Pro Ala Ala Val Thr Asp Leu Arg Ile Thr Glu Asn Ser Thr  
 995 1000 1005

Arg His Leu Ser Phe Arg Trp Thr Ala Ser Glu Gly Glu Leu Ser  
 1010 1015 1020

Trp Tyr Asn Ile Phe Leu Tyr Asn Pro Asp Gly Asn Leu Gln Glu  
 1025 1030 1035

Arg Ala Gln Val Asp Pro Leu Val Gln Ser Phe Ser Phe Gln Asn  
 1040 1045 1050

Leu Leu Gln Gly Arg Met Tyr Lys Met Val Ile Val Thr His Ser  
 1055 1060 1065

Gly Glu Leu Ser Asn Glu Ser Phe Ile Phe Gly Arg Thr Val Pro  
 1070 1075 1080

Ala Ser Val Ser His Leu Arg Gly Ser Asn Arg Asn Thr Thr Asp  
 1085 1090 1095

Ser Leu Trp Phe Asn Trp Ser Pro Ala Ser Gly Asp Phe Asp Phe  
 1100 1105 1110

Tyr Glu Leu Ile Leu Tyr Asn Pro Asn Gly Thr Lys Lys Glu Asn  
 1115 1120 1125

Trp Lys Asp Lys Asp Leu Thr Glu Trp Arg Phe Gln Gly Leu Val  
 1130 1135 1140

Pro Gly Arg Lys Tyr Val Leu Trp Val Val Thr His Ser Gly Asp  
 1145 1150 1155

Leu	Ser	Asn	Lys	Val	Thr	Ala	Glu	Ser	Arg	Thr	Ala	Pro	Ser	Pro
1160						1165					1170			
Pro	Ser	Leu	Met	Ser	Phe	Ala	Asp	Ile	Ala	Asn	Thr	Ser	Leu	Ala
1175						1180					1185			
Ile	Thr	Trp	Lys	Gly	Pro	Pro	Asp	Trp	Thr	Asp	Tyr	Asn	Asp	Phe
1190						1195					1200			
Glu	Leu	Gln	Trp	Leu	Pro	Arg	Asp	Ala	Leu	Thr	Val	Phe	Asn	Pro
1205						1210					1215			
Tyr	Asn	Asn	Arg	Lys	Ser	Glu	Gly	Arg	Ile	Val	Tyr	Gly	Leu	Arg
1220						1225					1230			
Pro	Gly	Arg	Ser	Tyr	Gln	Phe	Asn	Val	Lys	Thr	Val	Ser	Gly	Asp
1235						1240					1245			
Ser	Trp	Lys	Thr	Tyr	Ser	Lys	Pro	Ile	Phe	Gly	Ser	Val	Arg	Thr
1250						1255					1260			
Lys	Pro	Asp	Lys	Ile	Gln	Asn	Leu	His	Cys	Arg	Pro	Gln	Asn	Ser
1265						1270					1275			
Thr	Ala	Ile	Ala	Cys	Ser	Trp	Ile	Pro	Pro	Asp	Ser	Asp	Phe	Asp
1280						1285					1290			
Gly	Tyr	Ser	Ile	Glu	Cys	Arg	Lys	Met	Asp	Thr	Gln	Glu	Val	Glu
1295						1300					1305			
Phe	Ser	Arg	Lys	Leu	Glu	Lys	Glu	Lys	Ser	Leu	Leu	Asn	Ile	Met
1310						1315					1320			
Met	Leu	Val	Pro	His	Lys	Arg	Tyr	Leu	Val	Ser	Ile	Lys	Val	Gln
1325						1330					1335			
Ser	Ala	Gly	Met	Thr	Ser	Glu	Val	Val	Glu	Asp	Ser	Thr	Ile	Thr
1340						1345					1350			
Met	Ile	Asp	Arg	Pro	Pro	Pro	Pro	Pro	Pro	His	Ile	Arg	Val	Asn
1355						1360					1365			
Glu	Lys	Asp	Val	Leu	Ile	Ser	Lys	Ser	Ser	Ile	Asn	Phe	Thr	Val
1370						1375					1380			

Asn Cys	Ser Trp Phe Ser	Asp	Thr Asn Gly Ala Val	Lys Tyr Phe
1385		1390		1395
Thr Val	Val Val Arg Glu	Ala	Asp Gly Ser Asp Glu	Leu Lys Pro
1400		1405		1410
Glu Gln	Gln His Pro Leu	Pro	Ser Tyr Leu Glu Tyr	Arg His Asn
1415		1420		1425
Ala Ser	Ile Arg Val Tyr	Gln	Thr Asn Tyr Phe Ala	Ser Lys Cys
1430		1435		1440
Ala Glu	Asn Pro Asn Ser	Asn	Ser Lys Ser Phe Asn	Ile Lys Leu
1445		1450		1455
Gly Ala	Glu Met Glu Ser	Leu	Gly Gly Lys Cys Asp	Pro Thr Gln
1460		1465		1470
Gln Lys	Phe Cys Asp Gly	Pro	Leu Lys Pro His Thr	Ala Tyr Arg
1475		1480		1485
Ile Ser	Ile Arg Ala Phe	Thr	Gln Leu Phe Asp Glu	Asp Leu Lys
1490		1495		1500
Glu Phe	Thr Lys Pro Leu	Tyr	Ser Asp Thr Phe Phe	Ser Leu Pro
1505		1510		1515
Ile Thr	Thr Glu Ser Glu	Pro	Leu Phe Gly Ala Ile	Glu Gly Val
1520		1525		1530
Ser Ala	Gly Leu Phe Leu	Ile	Gly Met Leu Val Ala	Val Val Ala
1535		1540		1545
Leu Leu	Ile Cys Arg Gln	Lys	Val Ser His Gly Arg	Glu Arg Pro
1550		1555		1560
Ser Ala	Arg Leu Ser Ile	Arg	Arg Asp Arg Pro Leu	Ser Val His
1565		1570		1575
Leu Asn	Leu Gly Gln Lys	Gly	Asn Arg Lys Thr Ser	Cys Pro Ile
1580		1585		1590
Lys Ile	Asn Gln Phe Glu	Gly	His Phe Met Lys Leu	Gln Ala Asp
1595		1600		1605
Ser Asn	Tyr Leu Leu Ser	Lys	Glu Tyr Glu Glu Leu	Lys Asp Val

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Gly Arg Asn Gln Ser Cys Asp	Ile Ala Leu Leu Pro	Glu Asn Arg		
1625	1630	1635		
Gly Lys Asn Arg Tyr Asn Asn	Ile Leu Pro Tyr Asp	Ala Thr Arg		
1640	1645	1650		
Val Lys Leu Ser Asn Val Asp	Asp Asp Pro Cys Ser	Asp Tyr Ile		
1655	1660	1665		
Asn Ala Ser Tyr Ile Pro Gly	Asn Asn Phe Arg Arg	Glu Tyr Ile		
1670	1675	1680		
Val Thr Gln Gly Pro Leu Pro	Gly Thr Lys Asp Asp	Phe Trp Lys		
1685	1690	1695		
Met Val Trp Glu Gln Asn Val	His Asn Ile Val Met	Val Thr Gln		
1700	1705	1710		
Cys Val Glu Lys Gly Arg Val	Lys Cys Asp His Tyr	Trp Pro Ala		
1715	1720	1725		
Asp Gln Asp Ser Leu Tyr Tyr	Gly Asp Leu Ile Leu	Gln Met Leu		
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Ser Glu Ser Val Leu Pro Glu	Trp Thr Ile Arg Glu	Phe Lys Ile		
1745	1750	1755		
Cys Gly Glu Glu Gln Leu Asp	Ala His Arg Leu Ile	Arg His Phe		
1760	1765	1770		
His Tyr Thr Val Trp Pro Asp	His Gly Val Pro Glu	Thr Thr Gln		
1775	1780	1785		
Ser Leu Ile Gln Phe Val Arg	Thr Val Arg Asp Tyr	Ile Asn Arg		
1790	1795	1800		
Ser Pro Gly Ala Gly Pro Thr	Val Val His Cys Ser	Ala Gly Val		
1805	1810	1815		
Gly Arg Thr Gly Thr Phe Ile	Ala Leu Asp Arg Ile	Leu Gln Gln		
1820	1825	1830		
Leu Asp Ser Lys Asp Ser Val	Asp Ile Tyr Gly Ala	Val His Asp		
1835	1840	1845		

Leu Arg Leu His Arg Val His Met Val Gln Thr Glu Cys Gln Tyr  
 1850 1855 1860

Val Tyr Leu His Gln Cys Val Arg Asp Val Leu Arg Ala Arg Lys  
 1865 1870 1875

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Val Asn Pro Glu Tyr His Arg Asp Pro Val Tyr Ser Arg His  
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Met Lys Leu Gln Ala Asp Ser Asn Tyr Leu Leu Ser Lys Glu Tyr Glu  
 35 40 45

Glu Leu Lys Asp Val Gly Arg Asn Gln Ser Cys Asp Ile Ala Leu Leu  
 50 55 60

Pro Glu Asn Arg Gly Lys Asn Arg Tyr Asn Asn Ile Leu Pro Tyr Asp  
 65 70 75 80

Ala Thr Arg Val Lys Leu Ser Asn Val Asp Asp Asp Pro Cys Ser Asp  
 85 90 95

Tyr Ile Asn Ala Ser Tyr Ile Pro Gly Asn Asn Phe Arg Arg Glu Tyr  
 100 105 110

Ile Val Thr Gln Gly Pro Leu Pro Gly Thr Lys Asp Asp Phe Trp Lys  
 115 120 125

Met Val Trp Glu Gln Asn Val His Asn Ile Val Met Val Thr Gln Cys  
 130 135 140

Val Glu Lys Gly Arg Val Lys Cys Asp His Tyr Trp Pro Ala Asp Gln  
145 150 155 160

Asp Ser Leu Tyr Tyr Gly Asp Leu Ile Leu Gln Met Leu Ser Glu Ser  
165 170 175

Val Leu Pro Glu Trp Thr Ile Arg Glu Phe Lys Ile Cys Gly Glu Glu  
180 185 190

Gln Leu Asp Ala His Arg Leu Ile Arg His Phe His Tyr Thr Val Trp  
195 200 205

Pro Asp His Gly Val Pro Glu Thr Thr Gln Ser Leu Ile Gln Phe Val  
210 215 220

Arg Thr Val Arg Asp Tyr Ile Asn Arg Ser Pro Gly Ala Gly Pro Thr  
225 230 235 240

Val Val His Cys Ser Ala Gly Val Gly Arg Thr Gly Thr Phe Ile Ala  
245 250 255

Leu Asp Arg Ile Leu Gln Gln Leu Asp Ser Lys Asp Ser Val Asp Ile  
260 265 270

Tyr Gly Ala Val His Asp Leu Arg Leu His Arg Val His Met Val Gln  
275 280 285

Thr Glu Cys Gln Tyr Val Tyr Leu His Gln Cys Val Arg Asp Val Leu  
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Arg Ala Arg Lys Leu Arg Ser Glu Gln His His His His His His  
305 310 315

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25